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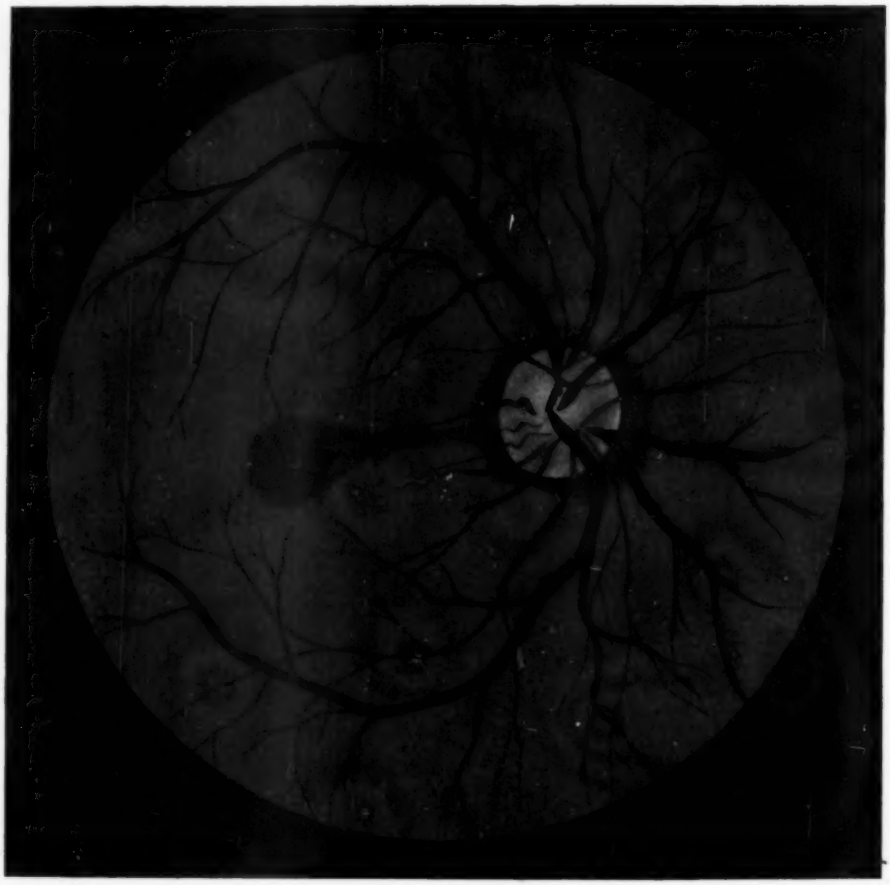

OCULAR FUNDUS IN ADDISON'S DISEASE (BROWN)

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OCULAR FINDINGS IN ADDISON'S DISEASE.

ALBERT L. BROWN, M.D.

CINCINNATI, OHIO.

This patient, seen with advanced Addison's disease, presented bronzing of the lids, with a darker line above the ciliary border of each upper lid. The pupils were dilated, the fundi presented pigmentation around each macula and disc, with a zone of similar pigment deposits joining the two regions.

Instances of Addison's disease are relatively so rare, that it can only be by the analysis of an occasional case that additions may be made to previous observations.* The literature contains isolated comments on the ocular findings in reports of this condition, while most do not even mention an ocular examination.

In a case admitted to the Jewish Hospital, a routine ophthalmologic examination was made, and the findings stated below were observed.

A man, white, 35, was admitted on the service of Dr. Henry Bettman, complaining of abdominal cramps, great malaise, and considerable recent loss in weight; the exact amount he did not know. The resumé of the general physical findings included a peculiar brownish discoloration of the skin over the entire body, more marked over the face and hands. Blood pressure was 68/44. Pulse 70. Respiration normal. All blood work coincided with that reported by Rowntree.[1] A tentative diagnosis of Addison's disease was made, and adrenalin administration was started. In 24 hours the patient was moribund, and 72 hours after admission he died. Abdominal necropsy revealed a pair of caseous suprarenals. Unfortunately ocular postmortem examination was refused. The lids were bronzed the same shade as forehead and cheeks. There was a darker pigmented line just above the ciliary border of each upper lid. The tensions were: O. D. 14, and O. S. 12. (Schiötz.)

It was just impossible to test the range of ocular movements, because of the patient's mental state. The eyes were noted to move synchronously when the patient was disturbed.

The sclerae were clear, with the exception of two dark, grayish spots near the limbus of the right eye, and two smaller dots adjacent on the cornea, at about 9:00 o'clock. Otherwise the corneae were clear.

The irides were dark brown, and showed no gross abnormalities. The pupils were widely dilated (about 5.5 mm.), equal and fairly regular. They reacted fairly quickly to light, directly and consensually, but only down to about 3½ mm. The reaction to accommodation could not be obtained.

The fundi presented rather striking pictures. The discs were sharply outlined, the temporal halves quite paler than the nasal halves, which were only lightly pink. The temporal halves showed a marked contrast to the fine, light arterioles coursing over them. The caliber of the veins was large thruout, and the arteries quite small. The ratio of the caliber was about 6 to 2. The veins were a very dark reddish-brown, and the arteries very light. Around each macula there was a dark gray homogeneous deposit of pigment, which faded into the surrounding retina in all directions in the left eye, but joined a streak of lighter pigment toward the disc in the right eye. The periphery of each eye was negative. (See pl. 5.) The vision and fields were of course, not obtainable. The patient was seen about twelve hours afterwards, at which time there were no changes noted. He died shortly after this examination.

COMMENT.

The deposits in the skin of the lids

were evidently a part of the general cutaneous pigmentation. This has been noted by many observers. The scleral and corneal dots have likewise been described before. The pupillary manifestations were significant, for they seemed to bear out like observations on the part of others concerning sympathetic irritability. The quick, but very limited reaction seemed to indicate an intact third nerve action, but a much greater than normal activity of the dilator fibers, which held the pupil dilated, and were only overcome by the reflex action from the stimulus of a strong light. The same was apparently true of the consensual arc.

The vascular phenomena presented seemed in accord with the general manifestations. With low systolic pressure (79 mg. Hg.) the elastic arterial walls contracted, and by a relative venous stasis created by slow circulation, the veins were dilated against an increased volume of venous blood. The paleness of the arteries may have been optical, i. e.—the arterial blood columns were so small as to be unable to impart the usual depth of color. The only explanation I can offer for the dark veins is that the circulation was so retarded as to allow the venous blood in the eye to become more thorely carbon dioxidized, and hence darker, before it passed from view. It may also be a deposition of added pigment in the vessel walls, but that seems untenable, for the color was so uniform.

The pigment deposition around the maculae and toward the disc (in the right eye) seems rather analogous to the fact that the general cutaneous pigmentation is greater on exposed surfaces. Might not light have some influence in this, because maculae are subjected to a greater concentration of light rays, which becomes less proportionately to the distance from the maculae? The hypotension, I feel, may become dependent on the low arterial pressure.

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1. Rowntree, L. G. J. A. M. A., Jan. 31, 1925, vol. LXXXIV, pp. 327 to 335.
2. Graefe-Saemisch Handbuch, Dritte Anflage; Abteilung, 1 B. S. 557.

POINT FOCAL AND BIFOCAL LENSES IN PRACTICE.

A. VERWEY, M.D.

DURBAN, SOUTH AFRICA.

Lenses are fixed before the face, eyes move behind them. This causes astigmatism due to obliquity of the pencil of rays, distortion, apparent movements due to varying prismatic effects, changes in perspective and altered focal surfaces. These undesirable effects may be diminished by careful choice among the surfaces giving the required lens effect. The relative influence of point focal toric, periscopic, plano and biconvex or concave lenses is explained.

In the foreword to Henker's book on the theory of spectacles, Frederic Cheshire states that the theory and practice of eyeglasses have lagged behind, compared with improvements in optical instruments. The whole principle of considering the eye as a moving recipient, behind a stationary lens, is generally ignored by ophthalmologists and opticians. Lindsay Johnson and Percival were in the front rank in appreciating these new ideas, and mentioned them before the London Ophthalmological Society in 1905. This want of interest may be considered to be due to lack of mutual understanding, between the scientific optician and the eye specialist.

The books on optics speak explicitly of the moving eye and the optical effects, but the very remarkable and unexpected conditions of focusing and change of focusing are ignored. Only few opticians have interest in the optical part of their work, the majority preferring the psychologic side of it; and the eye specialists have little leisure to devote to these intricate questions. Still the patients cannot wait until this knowledge is generally digested and accepted, and they should be brought earlier to the benefit of it.

The well known books of Gleichen, von Rohr, and Henker, formed the main sources of reference for this paper.

The unaided eye moves continuously; the spectacle lenses are fixed to the head; the image-forming pencil therefore passes the lens in different angles from the axis.

From the optical point of view there are to be considered: The blurring caused by astigmatism of the oblique pencil. The deviation of the principal ray by oblique incidence, by which is caused: (a) Distortion. (b) Apparent movements in the peripheral field of vision. (c) Change in the perspective. (d) Alteration in the vista. Discongruity between far point, sphere and image surface. The makers of point focal lenses lay greatest stress on the first point. For the patient and the ophthalmologists the second point is of more importance, because faulty orientation and giddiness are to be attributed to these deviations.

It goes without saying, that the blurring of images viewed obliquely thru the periphery, which is caused by the astigmatism of the oblique pencil, merits full interest. Every lens can be thought to be cut in two parts, so that planospherical lenses are formed. The desired refraction, the number of diopters can be obtained, therefore, by different combinations. For instance, plus 5 can be formed by plus 11 and minus 6 (the micoquille lens), by plus 6¼ and minus 1¼ (the periscopic lens), by plus 5 and plane (the planospherical lens) and by plus 2½ both sides (the biconvex lens). Those differences are called differences in *coflexure*.

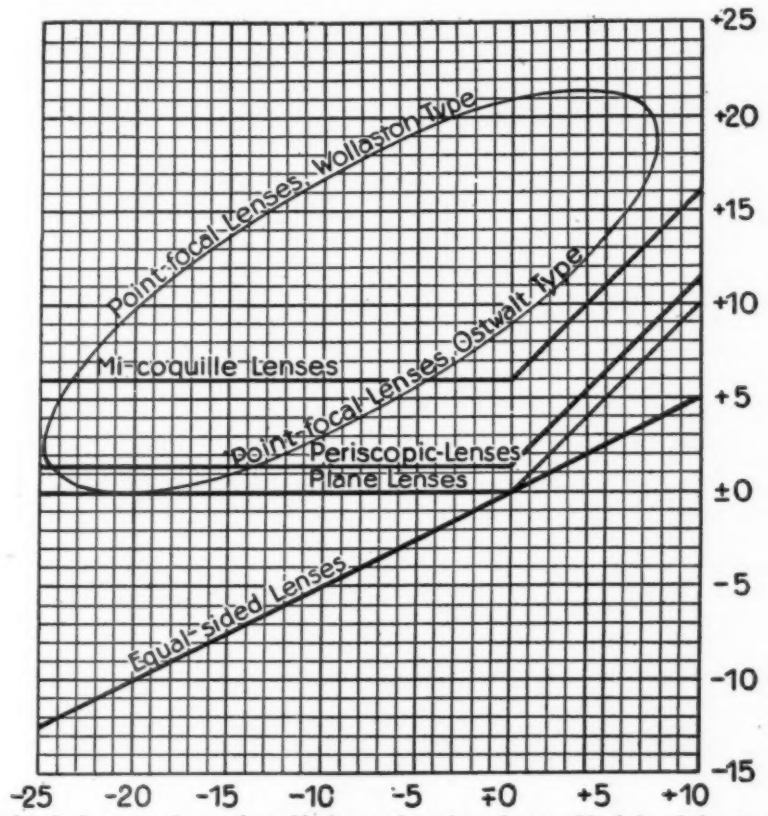

Fig. 1. Tscherning's curve of most favorable forms of meniscus lenses with their relation to other forms.

If the eye rotates and looks obliquely thru the glass, the image-forming pencil passes the pupil and the rotation center of the eye to reach the

macula. The rotation center does not change its position practically with respect to the spectacle lens and calculations are made for a stop placed there. It can be understood that for this particular stop it is possible to counterbalance the astigmatism of the anterior and the posterior surfaces of the lens, so that a point focal image is obtained. Consequently for a certain power of lens there is a combination, a coflexure, by which the astigmatism is practically abolished.

These facts are represented in the diagram, which should be read in the following way: The power of lens, the number of required dioptries, is represented on the horizontal line at the bottom; going upwards from a certain figure the curved line, the ellipse of Tscherning, is met at two places, for instance for plus 5 at plus 14 and plus 21. This means, that the anterior surface should have a refractive power of 14 or 21 dioptries. The posterior surface can readily be found by simple subtraction; in this instance, minus 9 and minus 16. The flatter lenses are called the Ostwald type, the highly flexed ones the Wollaston type.

On the same diagram are graphically represented the equal sided, the planospherical, the periscopic and the micoquille lenses; and one may read off for which ranges the different types of lenses are advisable, if the point focal lenses are not available. In prescribing strong positive lenses one should bear in mind that the highly flexed types have a different vertex refraction, on the object and the image side, and the system of numbering must be taken into consideration.

As I suggested previously, the influence of the deviation of the principal ray (the ray which passes thru the center of the entrance pupil) is, for the wearer, of more practical interest. One has here carefully to distinguish between the image formation by the lens and the perception of an object if viewed by wandering glance. The head being unmoved, one can take the measure of an object by rotating the eye thru different angles. These angles are modified by looking obliquely thru a lens. For instance if the unaided eye has to rotate thru 10 degrees to focus a second point, the eye aided by a positive lens has to rotate thru a larger angle. This fact would explain the impression of a magnified object; besides there is the more important circumstance, that this excess of rotation is relatively increased by looking more peripherally. This has the annoying effect that the objects in the periphery appear to fly away, that a square seems to be cushion shaped, and that the perspective is shortened. This distortion can be expressed in figures. It is unavoidable by single glasses, of whatever type, but it is smaller with the micoquille and point focal lenses.

So far for the optical part; more important is the physiologic side of the question. Do we really and practically use these movements of the eye and what are the perceptions gathered in our mind?

If the eye looks straight forward and attention is drawn to an object situated away from the visual line, the new image can be brought on the macula by rotation both of the eye and the head, or by each exclusively. Everyone can try this procedure for himself. I have come to the conclusion, that most people by looking upwards or downwards use more extensively the rotations of the eye, the head remaining nearly stationary. In looking sideways, the eye is rotated first, immediately followed by a rotation of the head, but not thru the same full angle. This difference in mechanism is probably caused by the convergence, which is influenced by sideways versions and these are therefore avoided.

Here I want to draw attention to a remarkable fact, which everyone can test for himself. If one looks first straight forward thru the center of a lens, and changes the direction of the glance by focusing another object thru the peripheral parts of the lens, apparent movements are not observed. On the other hand if an object is viewed thru the center of the lens and the head is turned sideways while keeping in focus the same object,

marked apparent movements are observed. What can be the difference between those two modes of using the peripheral parts of the lens? I published a paper on the peculiarities of focusing a few years ago. In it are reviewed and tested different facts of which a very remarkable one may be concerned here.

If one focuses for a minute a small luminous point, one can produce a sharp after image in the macula. Then by trying to keep the glance fixed on a certain point of lined paper, one becomes aware of the fact that the after image makes involuntary shaking movements of which one remains otherwise unconscious. By the same device one can prove that it is impossible to make the glance travel continuously along a line; only interrupted movements are possible. (A very interesting study of the movements of the eye during reading is published by Dodge.) On the other hand, one is quite able to follow continuously, without a flaw, an object that moves in the field of vision; equally to keep the glance fixed on the same point, while moving the head and consequently the eye in the orbit.

Considering these facts it can be understood that by throwing the glance to the side, only the new position comes to immediate consciousness and not the field trajected. By keeping, however, the glance on the same object while moving the head, an uninterrupted perception is obtained, and by the increasing deviation, caused by the periphery of the glass, a false projection is realized. The natural mode of looking to the side is to rotate the eye first, until the object is reached, a rotation of the head immediately following and this last movement is connected with apparent movements and false projections.

These distortions and false projections are very annoying to the patient. Many complain of them seriously; they see the window frame curved, watch the curb in the street coming upward. Certainly, after some time, experience overcomes perception, but to persons operated on for cataract they may cause considerable distress. They are apt to misjudge distances and to slip; for an elderly person a risky affair. The fact that those distortions are less in the katral and point focal lenses is certainly worth consideration.

One feels tempted to apply to bifocals the striking fact that no clearly conscious apperceptions are received, during the shifting of the glance from one point of fixation to another. One reads in the advertisements of opticians and spectacle makers, "The disastrous jump," "No burned fingers with our bifocals," "The test of the pencil," showing that generally main attention is drawn to the partition line in the lens.

In Henker's book three requirements are postulated for bifocal lenses.

1. Both segments should be point focal.

2. The optical axes of the distance and the near segments should meet the point of rotation of the eye.

3. In passing from the near to the distance segment, there should be no sudden break.

1. Only in a few cases it will be possible to procure the appropriate coflexure for both segments; small differences for the near part, however, will not be felt troublesome.

2. The optical axis for the distance segment can be made to meet the rotation center of the eye; for the near segment in the same glass only in very few circumstances. On the other hand, the optical center for the near segment can be localized so that it is met by the principal ray, with a convergence for the usual distance of twelve inches. (The optical faults arising from deviation and astigmatism of the oblique pencil can be kept within harmless limits, if the best possible coflexure is attempted.) Shortcomings from this postulate are causative for a great deal of the difficulties, and the interspace between the optical centers for the near segments should be calculated. Usually this interspace should be 5 or 6 mm. smaller than that between the distance centers. The near centers should be placed 6 or 8

mm. lower than the distance centers.

3. This requirement can be fulfilled by making the optical axis for the distance segment and for the near segment pass thru the center of the partition line. By so doing the more important requirement of the localisation of the optical centers must be sacrificed. Moreover, according to the theory mentioned, it is unessential and useless to pay much attention to the separation line. The wearer of bifocals feels difficulties, when focusing the floor, or a step. Thru the more positive near part the objects appear nearer and larger. Different causes can be made responsible for this fact.

It is erroneous to compare the size of a distinct with that of an indistinct image, but the clear image on the retina, of a near object projected by looking thru a positive lens in front of the eye, is larger than the distinct image formed by strengthening the refractive power of the eye by normal accommodation. This can be easily experienced, and less easily proved by calculation of the place of the second points of the system.

By relaxation of the accommodation, connected with the use of a positive lens, the objects would be expected to appear at a greater distance but they appear larger, by physiologic macropsia. These factors are unavoidable; the optical centers, however, for the near parts should be correctly localized. Making this interspace too large results in a troublesome prismatic effect. The convergence is increased, the objects appear nearer. But more important is the deviation of the principal ray, causing the feeling of a shifting, which is very annoying.

We know that the electric current does not give rise to muscle contraction, unless its strength or direction is altered. In the same manner we can understand that vision is seldom continuous, and that our apperceptions are built up from an interrupted current of perceptions. On the retina, after images would seriously interfere with a correct appreciation, if continuous stimuli were realized.

It will be useful to remember these conditions, when we are called upon to consider the various complaints of spectacle wearers and to give practical information.

DETACHMENT OF RETINA WITH COLOBOMA OF IRIS AND CHOROID.

J. Komoto, M.D.

TOKYO, JAPAN.

Three cases of this association of retinal detachment and congenital anomaly are here reported. In each case the fellow eye had long been blind and in one case was shrunken. The congenital condition may be transmitted by heredity.

In the September number of this journal, which I received October 10, I found a report of Dr. Henry P. Wagener and Dr. H. Gipner of two cases of detachment of retina combined with coloboma of iris, choroid and optic disc. I was very much interested because I had talked on a similar subject at the meeting of oculists here, April 24, 1925, and had contributed the manuscript to the July number of the *Central Review of Ophthalmology* (Gankwa-Rinsho-Iho, No. 7).

As the authors stated, "we have found no report of similar cases until now," I shall report the following three cases briefly.

The first case is very interesting from the clinical point of view. A patient, aged 25, suffering with coloboma of iris and choroid of both eyes came to the university clinic April 16, 1914, for consultation. For some time the vision of his right eye had been considerably reduced. The left eye was blind from phthisis bulbi. Examination revealed the existence of the detachment of retina on the temporal side of the fundus with the exception of the place of the coloboma in the

lower part. The papilla was not reached.

As the detached retina occupies almost one-half of the fundus, except the lower part, the whole inner space is divided into two parts by it, as an undulating curtain. The detached retina is clearly seen hanging straight downward and fluttering freely in accordance with the movements of the eye. The field of vision is reduced out and downward, but the patient can see sufficiently to walk alone. V = fingers counted at 2 meters.

It is interesting that a detachment of the retina came also on the other side, the following day. It seems as if the subretinal fluid had overflowed from the temporal side to the medial and lifted the remaining half of retina. At this time the fundus was occupied by the detached retina on both sides, temporal and medial, with the exception of the place of coloboma, where the flow of fluid was prevented. The detached retinas on both sides were swollen like two filled bags; which left a narrow space below between them resembling an isthmus, and there the papilla can be clearly seen, shining thru the lifted retina when the eyeball was in an oblique position, as the fluid was clear. The patient remained under my treatment for some time, but with no therapeutic success.

The following two cases are recent observations. The first is a farmer's son, eighteen years of age. There appeared on the right eye a detachment of the retina extending over the edge of coloboma of the choroid. According to the anamnesis the left eye was almost blind in consequence of microphthalmus, combined with an extreme case of coloboma of iris and choroid. The sight of the right eye was also weak from childhood, because of coloboma of iris and choroid, but not to the same degree as in the left eye. The visual disturbance of the present had existed for a few months. When I first examined him, Jan. 15, 1925, nearly the total detachment of retina could be seen, and V = fingers before eye.

The third case is a girl, 22 years of age, who was betrothed. Unfortunately, her right eye, which had but little sight was affected by the detachment of retina. The left eye had been blind for a long time, the pupil shut by the total closure of the iris, tension low. V. = 0.

The right eye has a typical coloboma of iris and choroid. The retina is almost entirely detached except a small medial area. The patient could scarcely see to walk. I tried every possible treatment but all in vain. Finally I advised an operation but she would not consent.

In each case I could not find any rupture of the retina anywhere, tho close examination of retina was made. It does not prove however, that there was no rupture of the retina, for it might have been lying near the front, where it is difficult to find with an ophthalmoscope.

The cause of detachment of the retina in a coloboma patient would be the same as in the case of myopia, for the myopic refraction is quite often accompanied by a coloboma.

Herewith I shall close my report with this note. The patient, who has coloboma of iris and choroid is not only in great danger of suddenly losing his precious sight; but, on the other hand, he is in danger of transmitting this ruinous condition to posterity, as is often seen. As to the danger of heredity, here I shall cite a case from my recent observation.

Mrs. Ogawa, right eye microphthalmus with coloboma of iris and choroid. Her first son, five years of age, right eye microphthalmus with coloboma of iris and choroid, besides a hare-lip. The second son, sound. The third, a baby girl of two months, both eyes, microphthalmus of high degree, vision questionable.

TRUE FILIAL TERATOMA AND CYST IN THE ORBIT OF NEWBORN CHILD

JAMES A. KEARNEY, M. D.

NEW YORK CITY.

In this case the orbit was enlarged by a tumor including skin, hairs, fibrous tissue, mucous membrane, bone and various glands. Brief outlines of ten cases previously reported are also included. Read before the Ophthalmic Section of the Academy of Medicine of New York City.

I wish to set forth a case of true filial teratoma and cyst in the orbit of a new born child, because of the following features: The rare occurrence of true filial teratoma in the orbit, only ten other such cases appear in literature, the pathologic findings, roentgenographic findings, the early operative removal of the mass under ether-oxygen anesthesia, four hours after the birth of the child, and the good result obtained in this instance.

B. H. American female child, delivered at full term without the aid of instruments by Dr. Wilbur Ward at the Polyclinic Medical School and Hospital, New York City, at 4 p. m., November 4, 1923. Father's direct ancestry, Scotch-Irish. Mother's direct ancestry, Italian. Both parents are robust and in excellent health. This was the third child born to them. The first one a girl, who is now five years old, is the picture of health. The second one a boy, delivered normally, born at full term, was without blemish and died 24 hours after birth; cause of death not known.

The infant to be reported upon was seen by me ten minutes after its birth. It was plump, of usual weight and size, and well formed in every way except in the region of the orbit on the right side. Here there was a red mass extruding from the orbital opening appearing not unlike a ripe tomato of medium size with the eye set and fixed in about the middle of its anterior surface. Only the anterior quarter of the globe could be seen; its posterior three-quarters were buried in the tissues of the mass. A portion of the growth pressed upon the side of the nose sufficiently to displace it slightly out of its true position. The cornea seemed to be the same size as the cornea of the other eye. The pupils of both eyes were circular and equal in size. The iris of the affected eye reacted promptly to light thrown into its pupil and to light thrown into the

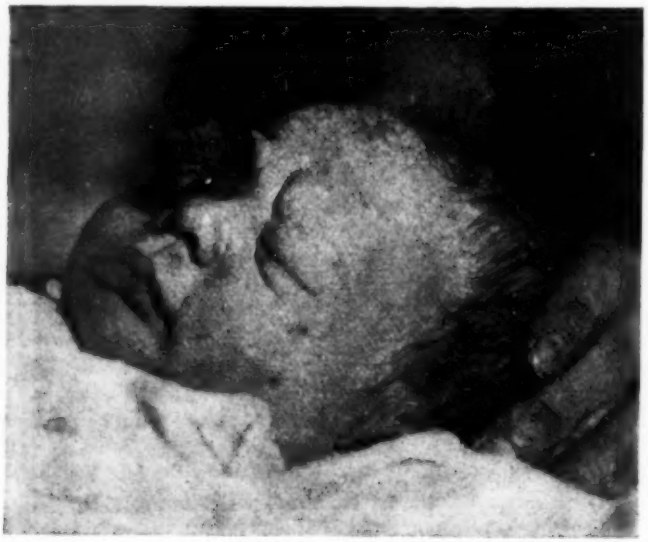

Fig. 1. Lateral view of child's head showing tumor with eye set in its apex.

pupil of the fellow eye. (Consensual light reflex.) Irides of both eyes were of the same color, slaty blue. The upper and lower lids were everted and covered beneath the tumor mass. By palpation, it was found that the consistence of that portion of the mass extending from the inner side of the posterior portion of the globe to the side of the nose was solid and that the consistence of the other portions was yielding.

Fig. 2. Front view of child's head showing tumor. Eye set in center of mass.

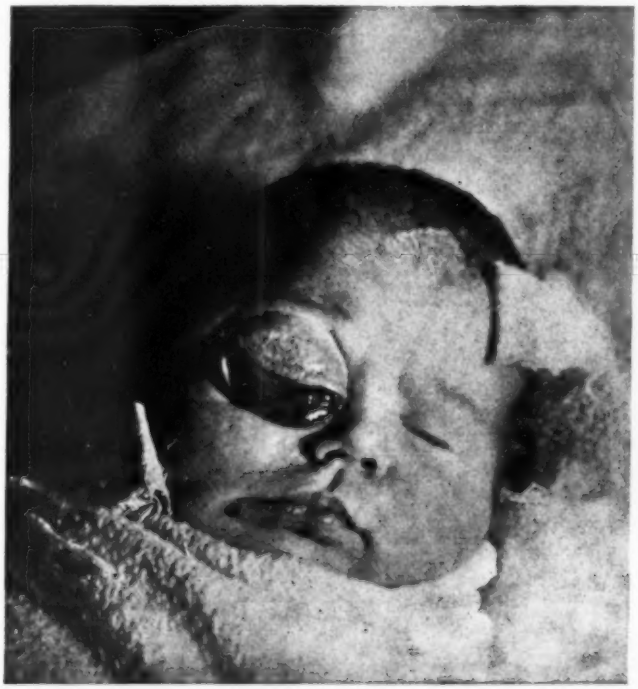

Fig. 3. Two weeks after excision of tumors. Upper lid covers the cornea. Extraneous tissue showing over everted lower lid.

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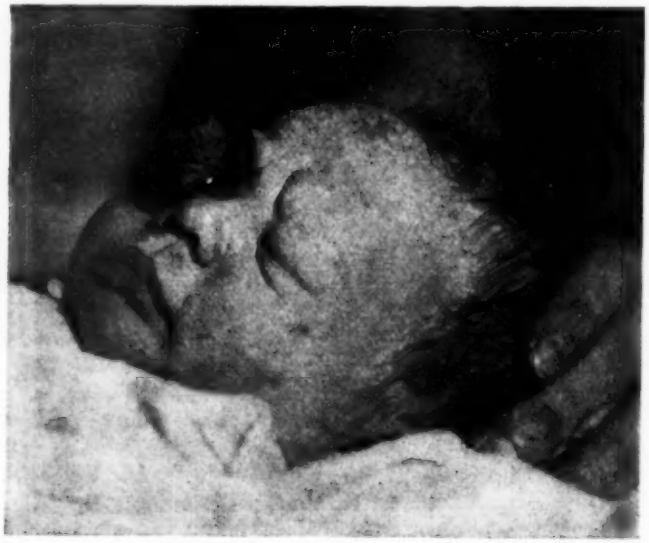

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Fig. 2. Front view of child's head showing tumor. Eye set in center of mass.

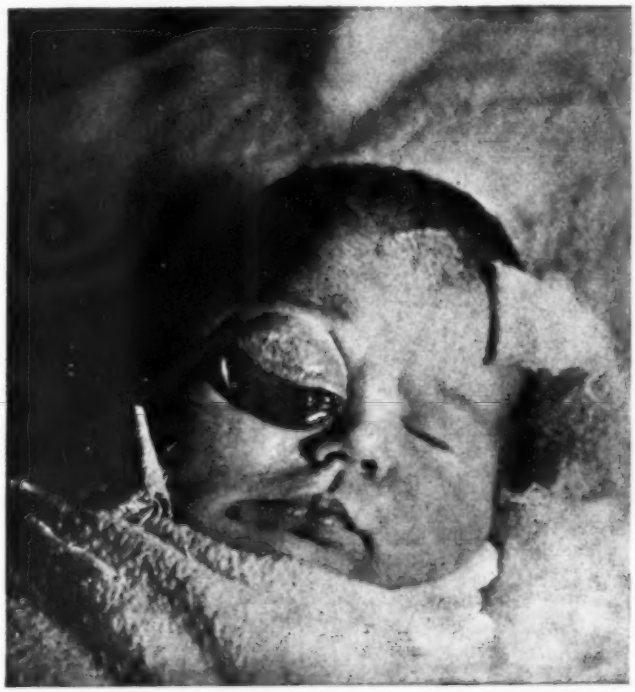

Fig. 3. Two weeks after excision of tumors. Upper lid covers the cornea. Extraneous tissue showing over everted lower lid.

The exposed eye was covered by sterile vaselin in order to prevent desiccation of the corneal tissues. Photographs of the baby displaying the orbital tumor and roentgenograms of the head were taken, and I operated at 8 p. m. the same day, four hours after the birth of the child, under ether-oxygen anesthesia.

A 10 mm. vertical incision was made thru the conjunctiva over the internal rectus muscle 10 mm. within the corneal limbus. The internus was clamped between the blades of an advancement forceps and the tendon excised 2 mm. from its insertion in the globe. The forceps containing the muscle when turned out of the way exposed a mass deep red in color which appeared as an insert in the surrounding paler and less solid tissues. The solid tumor when grasped by forceps was found to be adherent to the inner side of the globe and to the capsule of the surrounding and more yielding mass. By a blunt tenotomy hook dissection, it was released from the side of the globe with little difficulty and there was a slight dent remaining in the globe where the tumor was attached. The adhesions to the capsule of the cystic mass were broken away by the hook except for about ¾ of an inch of a strong band like attachment. This band was severed by scissors, the solid tumor removed, and by so doing the capsule of the cyst was perforated and about ¾ of an ounce of straw colored fluid flowed out lazily. Only the cyst wall remained. The solid growth removed was about the size and shape of a very large peanut and extended from before at the side of the nose in a backward, upward and outward direction, to the posterior portion of the globe on its inner side to within about 4 mm. of the entrance of the optic nerve. The optic nerve was found to be intact from the globe to the optic foramen. As much of the cyst wall as possible was excised and a cord like drain of iodoform gauze was inserted extending from the depths of the orbit thru the external wound. The internal rectus muscle was reattched to its stump by sutures and following this

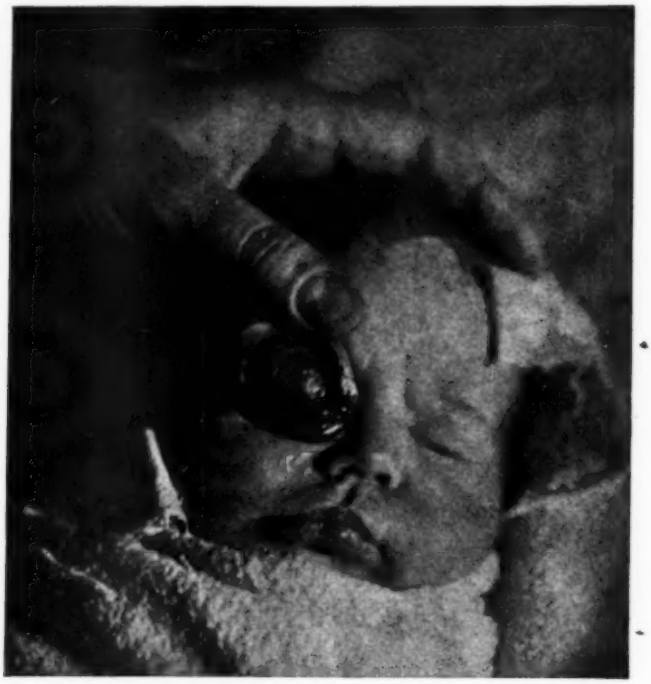

Fig. 4. Lid elevated showing the globe beneath.

the external conjunctival wound was sutured. The upper lid covered the entire corneal surface after the removal of the masses and the remaining superabundant tissues extruded thru the palpebral fissure over the everted lower lid. The child's eye was bandaged.

Appropriate postoperative treatment was administered and the following are the more important notations made during the period of convalescence. November 6, 1923, strand of iodoform gauze was removed. November 8, 1923, there appeared a superficial circular ulcer in the cornea about the size of the head of a pin half way between the lower pupillary margin and the lower limbus. Margins of the ulcer were opaque, cornea immediately surrounding was slightly hazy. November 11, 1923, the tissue that had extruded over the lower lid after operation reduced into the cul de sac and the lids could come together except at the inner canthus where there was a vertical fold of extraneous tissue. November 13, 1923, the globe became abnormally tense. A posterior sclerotomy was done under cocain anesthesia. November 20, 1923, the corneal defect healed and the tension of the globe seemed to be normal. December 6, 1923, the extraneous vertical fold of tissue adherent to the cartilage at the fornix of the upper and lower lids near the inner canthus was excised under ether-

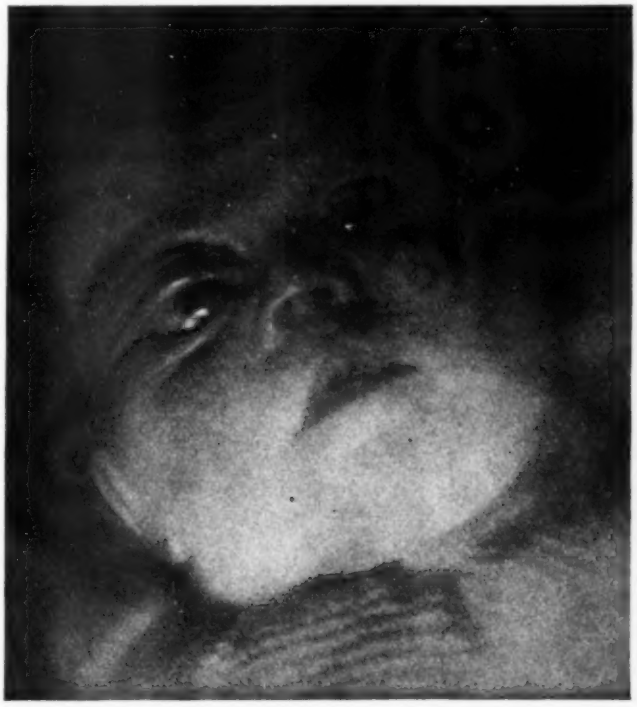

Fig. 5. Appearance of eye twelve weeks after operation. Palpebral fissue in operated eye much wider than the fellow eye.

oxygen anesthesia. The conjunctiva was sutured after extraction. December 7, 1923, there was no reaction of consequence after this operation, the lids came together. January 5, 1924, the palpebral fissure of the operated eye was about twice the width of that of the other eye and the entire cornea was exposed while the child was awake. When the child slept the lids gradually separated and exposed the lower portion of the cornea. On this day I did an external canthal tarsorrhaphy including 7 mm. of the margins of the lids and provisional tarsorrhaphy in the median line was done at the same time in order to relieve the

tension of the stitches at the external canthus. January 29, 1924, the stitches of the provisional tarsorrhaphy were removed and it was found that the external tarsorrhaphy wound was firmly sealed and healed. The stitches at the external canthus were then removed. February 3, 1924, both palpebral fissures were now about equal and the lids remain closed when she sleeps.

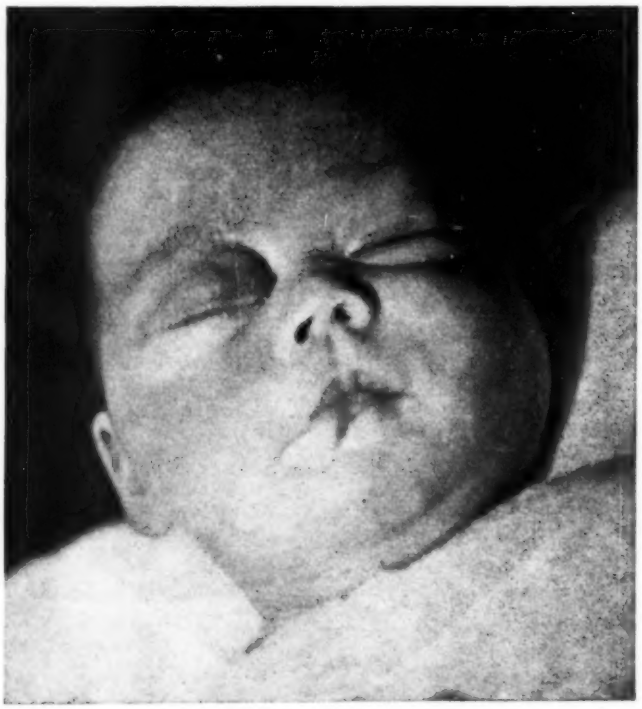

Fig. 6. Appearance of eyelids when the child sleeps, twelve weeks after operation.

The haziness in the lower part of the cornea was much diminished.

The child was seen by me from time to time until June, 1924 and at that time it seemed to notice bright objects with the affected eye. The red reflex was visible in this eye but I was unable to make out fundus details with the ophthalmoscope. The pupils were circular and equal in size and the irides of both eyes responded promptly to light, directly and consensually. The affected eye was in normal position and moved concomitantly with the other eye. The baby's increase in weight from time to time corresponded to that of a normal child and it has always been in excellent health. The parents took the infant to Europe in June 1924 and I have not heard from them since they left.

Dr. Joseph R. Losee, Director in Department of Clinical Laboratories, Polyclinic Medical School and Hospital, examined the tumor and his report follows: The specimen is made up of a tumor from the right orbit and measures 3x1.5x1.5 cm. One surface is smooth, lobulated and presents an opaque appearance. The other surface is irregular. There is a small amount of skin attached to the periphery of this tumor. Sections made thru different areas show that it is composed of fibrous tissue, cystic cavities containing mucus, and bone. Microscopic examination has been made of sections at the extremities and in the central portion of the tumor; and it is observed that its surface is covered by a thin layer of a typical squamous epithelial cells. The subepithelial tissue is composed of dense connective tissue which is chiefly of the hyalin variety and the adjacent structure is smooth muscle. In the central portion of some of the

sections there is a small cavity, lined by stratified squamous epithelium, surrounded by the deeper layers of the dermis in which there are sweat glands, sebaceous glands and hair follicles. This cavity contains a large amount of keratin. About the periphery of this structure there is some fatty tissue. In other areas definite glia tissue is observed. Many sections show glands typical of those found in the large intestine, lined by goblet cells, the protoplasm of which contains considerable mucus. In certain areas surrounded by fibrous tissue there are some gland acini quite typical of those observed in the normal adult mammary gland and in other areas there is a tissue simulating a racemose gland. At one extremity of the tumor, bone is observed with very well formed trabeculae surrounded by a dense cellular fibrous tissue structure not unlike periosteum. Well developed cartilage cells are observed in all the specimens.

Therefore there is in this tumor various types of highly differentiated tissue which have their origin in the three germ layers. Diagnosis: true teratoma of the orbit.

Associated with this specimen there was a small section of a cyst wall. This cyst is lined with several layers of stratified squamous epithelium. The subepithelial tissue is composed of a dense hyalin fibrous tissue structure which is infiltrated with red blood cells.

Dr. J. A. Quimby, Director of Roentgenology in the Polyclinic Medical School and Hospital, submits the following roentgenographic report: The orbit is enlarged and a mass protrudes forward from it for about 5/8 of an inch. There is some evidence of calcium deposits in the center of the mass which protrudes from the orbit.

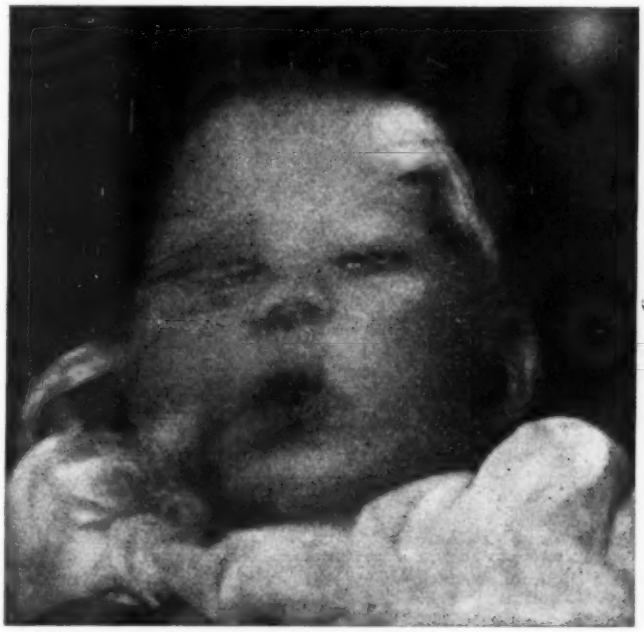

Fig. 7. Appearance of child's eye after tarsorrhaphy operations. Papebral fissures about equal in width.

Because of the length of time that has elapsed since the last case of a similar character to the one described has been reported, (15 years) I believe that recording the characteristics of this type of growth and noting the salient features from the histories of cases of this kind previously recorded will not be out of place.

Teratoma is a tumor made up of cells derived from two or three of the germinal layers and sometimes contains parts of organs and portions of

the body. Von Hippel states that the formation of complete organs was never met with. True teratoma always consists of tissue elements derived from all three germinal layers. True teratomata in the orbit occur in infants and are exceedingly rare conditions, only ten other such cases appear in the literature. This is the first American report of a case of true teratoma in the orbit of a child and it is fifteen years since the last case was published. In chronologic order the following are the cases of true teratoma in the orbit which have been recorded: Holmes, 1863; Broer and Weigert, 1876; Ahlfeld, 1880; Lawson, 1884; Courant, 1893; Ewetzky, 1904; von Hippel, 1906; Mizuo, 1908; Coulter and Coats, 1910; Elliot and Ingraham, 1910.

Fig. 8. Antero-posterior radiogram. Note size of orbit which contained the tumor.

Orbital teratomata may be grouped, representing all the stages from the mixed tumor to the diplogenetic structures. (1) The fetus is fastened by its pedicle in the orbit. (2) Parts of the body of a fetus hang from the orbit. (3) A formless mass hangs from the orbit shown histologically to be derived from all three primitive layers. (4) A tumor mass in the orbit shown microscopically to be composed of different parts, cysts, bones, etc., having the characteristics of a mixed tumor and traceable to two primitive embryonic layers.

The modified Marchand theory as given by von Hippel best explains the phenomena as follows: In the beginning of the development of the embryo, one blastomere comes to lie on the faster growing organism and re-

mains dormant to develop at a later time, or begins at once in the early embryonic life to develop. Such cases where they are not far removed by cleavage from the original ovum are capable of developing complete organisms. The greater the number of divisions of the original cell before such a blastomere is segregated, the less potent it is of development. So we have such cells developing complete organisms or only parts thereof, or giving rise to more embryonic layers accordingly as it is near the first cleavage or distant from it.

The following are citations of the salient features from histories of previously reported cases:

Holmes. (Doubtful instance.) Female twin seen seven weeks after birth, the eye protruded, the cornea became ulcerated and perforated, later the tumor was excised, child recovered.

Broer and Weigert. Child seen one day after birth. The tumor was in the right orbit, displacing nose, cheek and

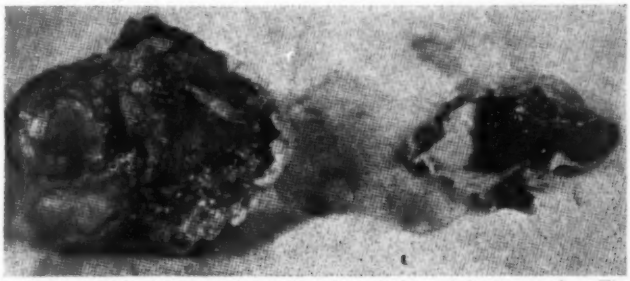

Fig. 9. Tumor mass represented above is about the size of the original growth. There is also a small piece of cyst wall.

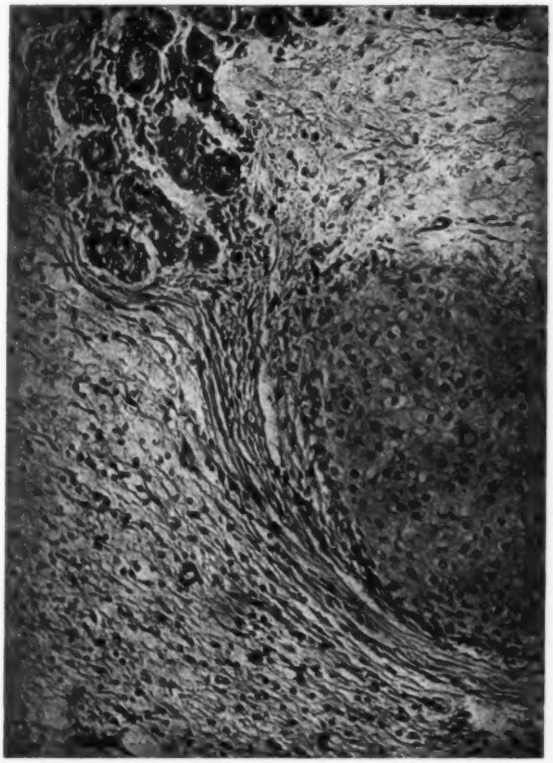

Fig. 10. Microscopic section. (a) brain tissue. (b) Cartilage. (c) Acini typical of those observed in normal adult mammary gland.

corner of mouth and was constricted by the lids, the globe was present on top of the tumor, the cornea was slightly opaque. Five days later corneal surface eroded, hypopyon was present, cyst was punctured and yellow fluid escaped. The orbital tumor excised was the size of a small apple. Death occurred two days later from pericarditis.

Ahlfeld. Mass recognized as a separate individual. From left orbit of well developed child there projected the buttock and left leg of a second individual. Near the buttock was a proboscis, like one of a cyclops. In the line of the maxillary cleft there was a tumor of liver like consistence and there was a large frontal encephalocele.

Lawson. Male child seen two days

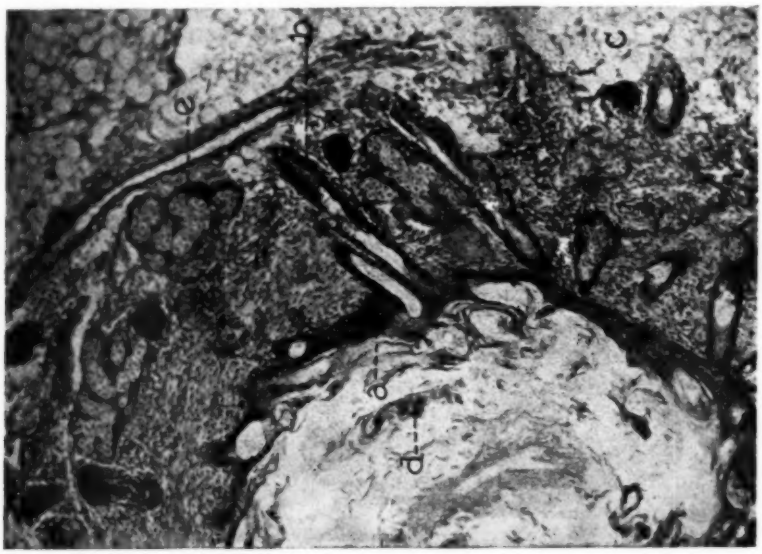

Fig. 11. Microscopic section. (a) Stratified squamous epithelium. (b) Hair follicle. (c) Subcutaneous fat. (d) Keratin. (e) Sweat gland.

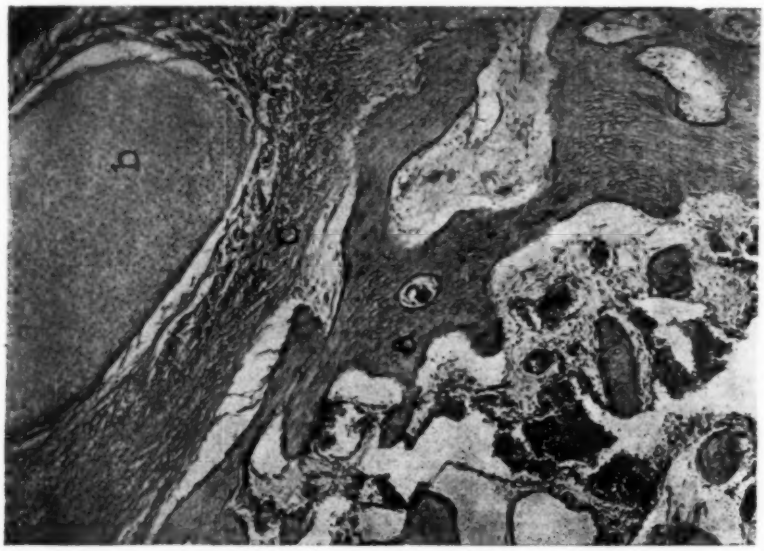

Fig. 12. Microscopic section. (a) Bone trabeculae. (b) Cartilage. (c) Connective tissue.

after birth. There was complete exophthalmus. Cornea was dull and covered with mucus. Eye was removed but not the tumor. The child died three months later of convulsions and coma.

Courant. Child was seen shortly after birth. The tumor filled the orbit. The eye protruded, the cornea was opaque associated with hypopyon.

Mizuo. Japanese child seen two days after birth. A tumor was found in the left orbit. The mass protruded and was punctured the second day, watery fluid escaped. At the end of fifty days, a whole fetus was expelled. The fetus had rudimentary arms and well formed nates and legs. Toes and nails were well developed. Connected with the thigh and lower part of the

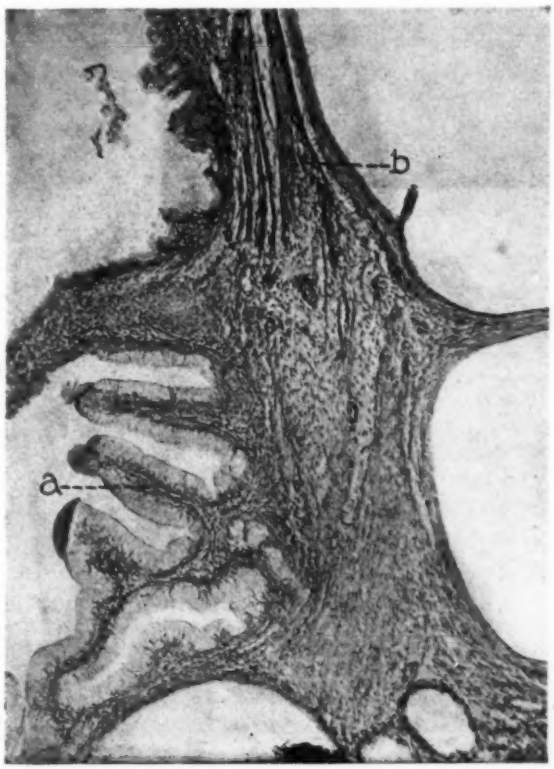

Fig. 13. Microscopic section. Wall of gastrointestinal tract. (a) Gastrointestinal glands typical of those found in the large intestine lined by goblet cells. (b) Nonstratified muscle tissue.

The tumor was the size of a small apple. Exenteration was done the second day. Recovery.

Ewetzky. (Somewhat doubtful case.) The child was seen four and one-half months after birth. Tumor was in the right orbit surrounding rudimentary eye at its apex. Exenteration was done and the child died.

Von Hippel. Child was seen five days after birth. There was a marked exophthalmus, the cornea was infiltrated and was associated with iritis. A tumor the size of a medium apple was found. The tumor was removed.

belly was a penis like structure with a "Y" shaped slit at its apex. The child, autosite was otherwise normal. The child lived and seemed to have some vision in the left eye.

Coulter and Coats. Child's eye protruded forward out of orbit with the lids stretched about it. The tumor was tapped and the child died two weeks later of exhaustion.

Elliot and Ingraham. Hindu, female child, well nourished and was seen when the child was six months old. A tumor the size of an orange was found in the left orbit. Eye was not to be

seen. Mouth, nose and cheek were pushed to the right side. The mass was removed and the child lived.

The cases of true teratoma cited comprise two groups; those in which members of second individual were externally recognizable (case of Ahlfeld and Mizuo) and the remainder including the present case were amorphous tumor masses. It is common to both groups, however, that structures derived from the epi- meso- and hypoblast are present. The amorphous type of tumor is similar to true teratoma found in the ovary and testicle and the well known sacral teratoma. These tumors are also sometimes found in the subcutaneous tissues, mediastinum, pelvic connective tissue, within the skull, etc. Tumors containing brain tissue are also found in the orbit of children, either as an encephalocele or as a distinct mass of brain tissue which likely has been snipped off as an encephalocele in the process of bony formation of the skull. These tumors are made up of tissues derived from the epiblast and mesoblast. They lack the elements that are derived from the hypoblast and therefore cannot be classed as true teratomata. The tissues found in true teratomata must consist of derivatives from all three germinal layers.

According to Adami's classification, the tumor described is a true filial teratoma. The eyeball and optic nerve are normal and have nothing to do with the origin of the growth. The tumor in this case is amorphous and the segregation of certain cells of the developing embryo must have taken on independent growth relatively late in fetal life, at least at a time when the formation of the eye and optic nerve were fairly well advanced.

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EXPULSIVE CHOROIDAL HEMORRHAGE AFTER CATARACT EXTRACTION.

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Three cases of this rare accident are here reported. Preliminary iridectomy had been done successfully on one. The second suffered from congenital dislocation of the lens and the third had a glaucoma iridectomy, done fourteen years before.

The hundreds of thousands of operations done for cataract and glaucoma thruout the world since the days of von Graefe have restored sight to a great number of otherwise blind eyes; running from 50% in the old days before the introduction of local anesthesia, to approximately 95% of the present era. Some eyes are even now lost thru absolutely unavoidable postoperative complications. Of these, expulsive hemorrhage is one of the most dreadful accidents that can happen. This is always to be considered, as sooner or later it is sure to occur in a definite series of cases; perhaps in three to a thousand. Only experienced surgeons are apt to report failures, so the occurrence of postoperative accidents is greater than would appear from the viewpoint of the literature.

In looking at the statistics of operations for cataract, occasionally there will be found remarks upon the causes of failure and among these are expulsive choroidal hemorrhage. The writer did his first cataract extraction 38 years ago and has had an extensive surgical experience. Unfortunately his statistics as to the number of cataract cases are not available; but his operations certainly amount to some thousands, in which section of the cornea and iridectomies have been made, in the process of operating for extraction of cataract, or for glaucoma. Of all these, he can recollect but six cases accompanied at the time of the operation, or in which some hours or days later, massive expulsive hemorrhage from the choroidal vessels occurred, with consequent total failure to achieve the desired result of restoration of vision. Three of these were more than 20 years ago; and until the last year he has not generally looked forward to any such complication; remembering, however, in all cases, that the prophylaxis of suitable diet, purgatives, iodides, quiet, reduction of high blood pressure, are calculated to minimize the tendency to choroidal venous rupture and hemorrhage. Therefore, to his chagrin and astonishment, within a few months he has had three cases of massive expulsive hemorrhage, following cataract extraction. In all three, exceptional preliminary care and study were given. In two of them a preliminary iridectomy had been made a considerable time before extraction. In the other the operation was done as a last resort for an opaque, dislocated lens.

CASE 1. C. B. C., age 71. Examined Nov. 21, 1922; myopic astigmatism both eyes, —8.00 ⊂ —1.00 cy. ax. 45°. Immature senile cortical cataract, both eyes; vision R. and L. 6/XXX; fundus visible; no signs of sclerosis of vessels; blood pressure 160-80; physical and laboratory examinations, normal.

First operation Dec. 26, 1922, at the Swedish Hospital; preliminary iridectomy on the right eye; normal operation; speedy healing. The cataract matured very slowly and the patient was able to carry on his profession of instructor in music until December 1924, when the vision of the right eye had failed to 3/LX; that of the left to 6/XXX. Blood pressure 160-80; physical and laboratory examinations normal. Apparently a very favorable case for extraction of cataract.

December 27, 1924, at the Columbus Hospital, a normal extraction in the capsule, placing two preliminary conjunctival stitches, was done. Fluid vitreous showed, but no loss; operation otherwise normal. Analgesia by ¼ gr. morphin, 1/100 gr. hyoscin hypodermically one hour before operation. Cocain anesthesia. Morning of December 30th, 3 days after operation, the bandage was stained with blood and there was evidently considerable pain, altho patient did not complain,

being a Christian Scientist and expressing himself as "concentrating" on his healing. Removal of bandage showed a massive choroidal hemorrhage apparently with no infection. Dr. George Swift was called in consultation. A compress bandage with cold dry applications was applied. Dressing made next day.

January 2, 1925, the hemorrhage showed as a very large subconjunctival bleb about 3.00 cm. in length and 2 wide, sticking out between the lids like a finger. Pupil visible and no hemorrhage in the anterior chamber. The chemosis proceeded further, until the next day there was an enormous bleb under the lids. Dr. Swift was called in consultation. Enucleation or exenteration was advised, but this was refused. On the sixth day heat was applied by moist compresses; the very large blood clot slowly absorbed without penetrating the anterior chamber. It was seen to have come from the nasal angle of the operative wound. January 26th there was complete resorption of the blood clot and shrinkage of the eyeball had begun. Patient last seen Jan. 30, 1925: the eye going on to phthisis bulbi and totally blind. Vision of the left eye with glasses had somewhat improved, being 6/XX. The patient, being an ardent Christian Scientist, had been treated by "absent treatment" and also by visitation of Christian Science readers during the entire period of his convalescence and was still positive he could "concentrate" healing and return of vision to this sightless globe.

Case 2. J. L. McQ., age 29. First seen in Sept. 23, 1918, with congenital dislocation of the lens of both eyes upward. Was able to count fingers at 1.00 m. Did common laboring work for a number of years. Went to work for the City of Seattle as street cleaner in 1919. All at once the sight went out of the left eye; it became inflamed and full of blood. Dr. Secoy of Everett enucleated this eye in 1921. The right eye became more poor-sighted during the last two years. February 26, 1925, Dr. Secoy had sent him to me for operation. On examination, the right eye was found to have a cataractous lens, dislocated upwards, and as light perception and projection was good, and the patient in physically good health, with negative Wassermann and other laboratory findings, blood pressure 112-84, it was decided to give him a chance of getting some sight by removal of the dislocated cataract in the remaining eye. He was sent to the Columbus Hospital and cataract extraction done, after preliminary Kalt conjunctival flaps and suture. There was spontaneous delivery of the lens, with slight loss of vitreous and considerable hemorrhage, which was believed then to be from the conjunctival wound. No iridectomy was attempted. Scopolamin gr. 1/100 and morphin gr. ¼ one hour before operation, but did not work well, as patient was extremely fractious. This is the only case for several years in my experience in which the analgesia did not quiet the patient, and it is possible the scopolamin-morphin was not satisfactorily administered. May 28th, two days after operation, the bandage was stained with blood and, on examination, the culdesac was found full of free blood and the anterior chamber full. The hemorrhage ceased under iced applications and resorbed under hot applications. April 21, 1925, an atrophic globe with no vision had resulted.

Case 3. C. F. A., age 49. First examined June 12, 1911. Diagnosis: Glaucoma in right eye; tension + 2; vision 6/XX. Left eye, total glaucoma with secondary cataract; tension + 3; blind. June 14, 1911, at the Swedish Hospital the Lagrange operation was done on both eyes, with iridectomy of the root of the iris. Patient continued with his business as a small farmer for eight or nine years, coming in for observation every few months until 1919 when he saw another physician, name unknown, during my absence. Returned May 26, 1925, with well developed cataract in the right eye; could count fingers at 1 m. The left eye was in good condition for a blind eye, with a deposit of lime in the lens and in the cornea. Cataract extraction was advised in the right eye, which was done

at the Swedish Hospital June 5, 1925. Conjunctival stitches in the flap used. Hyoscin-morphin analgesia; cocain, local anesthesia. This was a deep-set eye; the operation was very difficult on account of blepharospasm. There was a slight loss of vitreous, but the wound was well coapted. There was postoperative mania for one week, requiring the patient to be strapped in the bed by pinning his sheets and with nurses constantly in attendance. Seven days after the operation the bandage was stained with blood and a massive hemorrhage of the choroid at the inner angle of the wound seen. The wound was held well coapted by the stitches. There was gradual absorption of the blood to June 22d, when practically all the iris and a drawn-up pupil could be seen. The result was, however, atrophy of the globe, with no vision.

Previous to 1915 little is found in the literature; de Wecker reported 8 serious hemorrhages in 3,000 operations, while Sattler saw only 4 in the same number. Kambe collected 150 cases. Green and Hardy sectioned an eye which had been trephined for a blind, plainful, glaucomatous condition. Evidence was present that a large, deep, intraocular hemorrhage had taken place into the vitreous. Woodruff had a similar experience in a blind, painful eyeball, except that the hemorrhage took place some days after the operation.

In a study of hemorrhage into the anterior chamber after the extraction of hard cataract, noted here to show that while hemorrhage was observed, no cases of massive choroidal hemorrhage apparently occurred in this series, Wheeler analyzed 2,123 operations done at the New York Eye and Ear Infirmary. He found hyphemia developed in 4.57% of cases, occurring from 1 to 28 days after the operation; diabetes and albuminuria predisposed. Recently William A. Fisher reports expulsive hemorrhages in cataract operations.

Birch-Hirschfeld reports an expulsive hemorrhage after an Elliot trephine operation, in a woman 67 years old. "In spite of great care, a hemorrhage occurred 25 hours later, as a result of which the retina was expelled thru the trephine opening. The retina presented three different anatomic pictures: (1) Structure entirely normal; (2) structure markedly altered; (3) structure so changed that retinal tissue could not be recognized. The most marked changes were to be seen on the edges of the preparation where, apparently, compression and friction against the margins of the trephine hole were strongest. The different retinal layers could not be made out. It presented one cord like mass of tissue full of cavities and cracks, which were filled with irregular layers of glia cells and broken down nerve cells. Underneath the epithelial layers there were several large sized hemorrhages. The author believes that prior to the operation there was extensive disease of the walls of the vessels in the choroid and retina; which, owing to the patient's hypertension, led to rupture at a time when the bulb was relatively hypotonic, and the increased intraocular tension could not counteract mechanically the onset of a hemorrhage. The operation, he believed, acted as an exciting cause, in an individual predisposed by age and vascular disease to retrochoroidal hemorrhage."

Melville Black reported the case of a woman, aged 54 years, in whom severe bleeding had followed cataract extraction. "There had been annoying bleeding at the time of preliminary iridectomy. When the eye was dressed for the first time, four days after successful removal of the lens with the Kalt forceps, the anterior chamber was full of blood, and for several days it was manifest that great bleeding was constantly occurring. The blood coagulation time was six minutes. After hypodermic use of thromboplastin for three days, the anterior chamber was almost free from blood. After the thromboplastin was discontinued for a few days, fresh hemorrhage occurred. There had been no further hemorrhage after an additional seven days use of thromboplastin."

All sorts of causes are mentioned for this unfortunate accident. These are

mainly extraction in a glaucomatous eyes, hemophilia and disease of the choroidal blood vessels. The exciting cause is anything that brings strain on the eye; the sudden decrease in the normal ocular pressure from the opening of the globe; venous hyperemia from vomiting; strain of coughing, etc.

These hemorrhages have been observed more frequently since the use of local anesthesia, believed by Becker to be due to dilatation of the vessel following, after the effect of cocain has ceased, which in predisposed eyes lead to rupture.

The bleeding may occur in any operation that involves opening the eyeball, as after iridectomy for glaucoma, but it is in cataract operations that it is more apt to occur. The blood invariably comes from a ruptured choroidal vein. It collects between the sclera and the choroid and ruptures the latter. In cases during the operation or immediately afterwards, the vitreous is usually prolapsed and shortly afterward a violent bleeding occurs, which may not happen until the eye is bandaged. Recurrences have happened in several cases. It most often occurs when the vitreous has been liquefied. Microscopic examination of such eyeballs shows hyalin degeneration of the retina; the vascular walls of the uvea partly thickened; liquid vitreous, and the retinal vessels very narrow. Because of the very small experience of such cases vouchsafed to any individual operator, it has been difficult to determine whether or not hypertension of the general vascular system is one of the main factors. Such, indeed, has been the author's own experience; his previous cases having occurred before the advent of systematic use of the sphygmomanometer, no notes on such are available. In the last three cases the blood pressure was high in only one. In the three the operations were normal, and a favorable result was reasonably to have been expected.

How is choroidal hemorrhage to be avoided? Wm. A. Fisher and H. T. Holland say: "In many cases it is inevitable, but in my experience it has generally occurred in cases of high tension, and for this reason the tension was taken with a McLean tonometer in every case of cataract operated on, save in a few cases where the operator forgot to use it; and several of our cases of choroidal hemorrhage were due to this omission. Cases received in the operating room without any note regarding tension were found to give reading of 50 and more. Others with a warning note as to tension, sent in for extraction with capsulotomy or for preliminary iridectomy, were found on several occasions to register 100 or more. Such cases, unless for relief of pain, were refused operation; others again sent in with a warning of 'low tension' were found to be normal with the McLean tonometer.

"If over 70, operation is fraught with great danger and the patient must be warned of the danger of choroidal hemorrhage. Out of 1,455 cases, choroidal hemorrhage occurred only in three cases in which the tonometer reading was within normal limits."*

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*The posthumous article by the late Dr. S. Lewis Ziegler appearing in the "Contributions to Ophthalmic Science," Edward Jackson Memorial Volume, "The Problem of Choroidal Hemorrhage in Cataract Extraction" gives eight of his own cases and a bibliography of 131 numbers.

INTERSTITIAL KERATITIS.

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In this case the symptoms were suggestive of both luetic and tuberculous etiology. The evidence from laboratory studies was negative, as to either of these causes. It teaches caution as to basing diagnosis on evidence often regarded as conclusive.

Heredity and adolescence are apparently coincident in the greater number of eye manifestations of inherited lues. However, this case, presenting itself in an adult, I think is of sufficient importance to warrant a notation, to show, irrespective of examinations, physical, blood, chemical and bacteriologic, no enlightenment was given regarding the etiologic entity.

The pathology was entirely limited to the cornea; the keratitis showed itself deep in the layers of the cornea; the vascularization, superficial and deep, appearing and disappearing at the limbus; the pericorneal injection and the salmon colored patches were characteristic of interstitial keratitis. I feel certain this keratitic manifestaton is an apparent expression of some metabolic entity, and not a mere local condition. Frequent examinations did not show any other involvement of the anterior segments of the eye, tho the ocular picture was one of a typical luetic interstitial keratitis.

CASE.

The patient was first seen on August 20th, 1923; age 30, white, single. Her own words were, "that the right eye became sore in May, 1923, with two small blisters where the white meets the color of the eye, which gradually disappeared; the eye continued painful and watered a great deal; light is very annoying to the eye, and eye constantly waters. The sight in the eye began to fail when I was 15 years of age."

Examination showed ocular excursions normal; no ptosis; conjunctiva clear, cornea cloudy; large mutton fat deposits in the central layers of the cornea, with superficial and deep vascularization. Fine vitreous opacities, and nervehead shows apparent temporal pallor; retina, choroid and macula normal. Vision limited to hand movements. Impression—interstitial keratitis, luetic or tubercular in orgin. Atropin 1% solution was ordered and tinted glasses to be worn. Referred for physical examination:

History—Father died of tuberculosis, age 56. Mother died of heart and Bright's disease, age 49. Two brothers and one sister living and well. Two brothers died, one accidentally killed and one died in early infancy. Two sisters dead, one of tuberculosis and one in early infancy. No disease of childhood. Pneumonia at age of 4. Influenza, fall of 1918, mild attack. Tonsils and adenoids removed at age 15. Cervical glands of left side removed 1918. Hemorrhoids since 1918. Attacks of eruptive eczema, off and on since childhood. Acute otitis media of left ear and some deafness since then. No pulmonary symptoms whatever, except some general malaise since May, 1923.

Temperature 98.2, pulse 96, respiration 24, weight 134½ pounds. Looks well. Is well developed and nourished. scar on left side of neck. Chest, medium, short and round, expansion good on both sides. Heart, apparently normal in position, no murmur. Lungs, slight impairment of percussion note over right upper, to 2nd rib. Slight bronchovesicular breathing above 3rd rib and on increased whispered voice over the same area. No rales anywhere. Abdomen, soft, not tender, no masses. Reflexes, normal. Skin, psoriasis. Rectal, external and internal hemorrhoids. No gynecologic condition. Gastrointestinal examination negative. Fluoroscopic examination shows nothing abnormal except sluggish mobility of large intestine. Chronic sinusitis; ethmoids clear. Tonsils diseased and adenoids. Vestibular tests, normal response. X-Ray report, sinsuses negative. Chronic suppurative otitis media. Teeth, multiple abscesses. Infected teeth removed. Blood Wassermann and spinal fluid, negative.

September 13, 1923: Eye condition the same. Oct. 5. Fields show some

contraction for red. Oct. 14. Excision of hemorrhoids. Referred for minimum dose of salvarsan.

Oct. 19. Deep vessels have increased in number, eye more quiet, 5% dionin drops ordered. Dec. 7. Vascularization of cornea increased.

January 11, 1924. Returning with more violent infiltrates, and, opacities more marked. No uveal involvement. Left eye normal. Jan. 23. Condition not improved, treatment continued.

Feb. 5. Tuberculin started with 1/100,000 mg., continued to 20 in number, increased to 8/1000—no reactions to tuberculin and improvement. Feb. 8. Eye worse. Deep infiltrate; vessels increased in number and part of cornea salmon color; vessels deep in cornea and sink in at ciliary border. No ciliary irritation, only lower part of cornea clear, rest going to cicatricial stage. Feb. 18. Cornea punctured and aqueous withdrawn. Injected into anterior chamber of two rabbits. Report, heavy growth nonhemolytic streptococci. Feb. 29. Eye not improved. No tenderness over ciliary body; no edema of upper lids. Eye treatment continued.

Mar. 14. Opening of ethmoids and sphenoids. No pus found. Mar. 21. Milk injections—eye looks improved, less injection; and opacities less dense. No pain. Mar. 31. Corneal vessels injected, eye worse, complains of stiffness and pain in left arm. Mar. 28. Discontinue atropin. Apr. 4. Feels greatly improved; gaining weight. Apr. 10. No change, eye quiet, opacities deep. Apr. 14. Increased dionin to 8%.

Apr. 25. Tonsillectomy and adenoidectomy. May 21, 1924. Eye condition inactive, corneal opacity not quite so dense, eye quiet.

Oct. 1, 1924. Eye acutely inflamed. Patient was comfortable during Summer. States she had a cold one week ago, since then eye became painful. Dense infiltrate, deep vessels, cornea cloudy. Left eye vision normal and examination negative. Blood study, negative. No nucleated reds; no parasites, one cell seen which looks like a neutrophil myelocyte, but no others seen. Oct. 3. Transillumination reveals deep layers of blood vessels and deep infiltrates central. Eye suggestive of minus tension to palpation. Oct. 11. Complaining of pain, corneal condition same, transillumination shows ciliary muscle rather clearly thru sclera. .05 mg. of typhoid vaccine given. Oct. 13. Eye not improved; vaccine made from culture taken from anterior chamber; hypodermic injection made frequently with increasing doses; temporary improvement, then the eye would again become painful. The patient returned to the Eye Clinic at the Hopkins requesting its removal. Having exhausted our knowledge as what to do for the eye she was admitted into the hospital. Before the eye was enucleated the fluid was again withdrawn from the eye and injected into guinea pigs—report negative for T. B. The eye was carefully examined macroscopically, as I was anxious to show the students the structures of the eye; the parts were sent to the pathologic laboratory with negative findings. Two similar cases are reported by Flenning Rönne.

My impression is that this was interstitial keratitis of etiology unknown. Patient since the enucleation has greatly improved in health. I have purposely described this case in detail. Doctor O'Brien was kind enough to look up the medical literature, as well as to carefully follow the case. The history of beginning eye complaint when 15 years of age, and the subsequent history, leans towards a syphilitic infection. A prescribed course of antiluetic treatment, blood and spinal might have been to her advantage; and however, with a negative spinal fluid Wassermann this was not done. We have seen cases in the clinic with negative findings, yet with prolonged antiluetic treatments they improved.

In another case in the clinic, a man 45 years of age with interstitial keratitis, his findings were positive; and with antiluetic treatment his eye cleared up fairly well. The rabbits' eyes that had the fluid from the anterior chamber injected into theirs showed no keratitis, but a marked ciliary injection.

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OPERATION FOR JUVENILE CATARACT IN TWO STAGES.

GEORGE HOUSTON BELL, M.D., F.A.C.S.

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The operation here described was adopted because of failures of the method of going into the cornea and leaving a round pupil. In the new method an iridectomy is done, and four weeks later the discission is performed, with the knife entering thru the conjunctiva and sclera back of the limbus. The dangers of the corneal route and the advantages of the new method are contrasted. Read before Section on Ophthalmology, New York Academy of Medicine, October 19, 1925.

For simplicity, we have added to Weeks' classification of juvenile cataracts, all soft and semisoft cataracts in patients up to 45 years of age.

My failures with the old method of operating for soft cataracts, by going thru the cornea, with the round pupil; and failures of other surgeons, that I have seen from time to time, led me to adopt this operation in two stages for all congenital and juvenile cataracts. In our hands, it has been successful in over 100 cases, and also in high myopias. Two of my failures are presented. They were done by the corneal route with the round pupil; and also some cases which were done according to the new method.

One of my failures is most interesting. At the age of ten, a patient (now 25), came to me with lamellar cataract. Discission was done and then linear extraction thru the cornea; with the result that a tag of capsule extended thru the pupil and was attached to the corneal scar. Several operations failed to free permanently, the capsule. The other case is such as we often see, where the iris is entangled in the corneal scar. After an experience of 25 years, we feel that it does not pay in the long run to take the chances of going thru the cornea for the results obtained. In a recent paper, Elschnig[1] says, "all incisions for the purpose of opening the anterior chamber must lie in the limbus, or at least in that portion of the corneal margin that contains the superficial vessels, and when possible should be covered by a conjunctival flap."

TECHNIC.

First Stage: The focal infections such as oral sepsis, diseased tonsils and toxemias of the intestinal tract, must be removed. All patients must stand the acid test for the "Three T's."[2] The work on focal infections must be done two to three months before the patient is admitted to the hospital; a Wassermann test is made, also the urine is thoroly examined. We lay great stress on our preliminary work, as we feel that the general state of patients must be studied. Two hours before the operation, a smear of the conjunctival sac is taken, after which 2 drops of 1 per cent solution of silver nitrate are instilled into each eye.

The method[3] of preventing postoperative infections by the use of silver, has been previously reported. The brow, the eyelids and adjacent skin are washed thoroly with castile soap and the eyes are washed with a normal salt solution. While the patient is undergoing cocainization, a 25 per cent solution of fresh argyrol is dropped in the eye from time to time. Iridectomy is now done, using a small keratome and the Reese[4] method of entering the anterior chamber. A small piece of iris is excised and pillars of coloboma replaced, the conjunctival flap is adjusted and sealed down. One-half per cent solution of atropin is instilled, also 25 per cent solution of fresh argyrol. The patient leaves the hospital in a few days and is requested to return in four weeks.

Second Stage: After using silver and argyrol to prevent infection, we employ the Ziegler technic for discission of the lens, except that we do not go thru the cornea. Under cocain anesthesia and full mydriasis, we use a Ziegler knife; and start about 5 mm. back of the limbus, enter the conjunctiva and push it forward on the point of the knife and enter the anterior chamber thru the sclera, just back of the limbus. As we have a coloboma to work in, we have no trouble in doing a discission of the lens according to the "V-shaped Method." When the lens begins to swell, the patient is placed on hot

bathing, and generally leaves the hospital in about ten days with nearly all the lens absorbed. If, however, the lens swells too rapidly and secondary glaucoma supervenes, we do a linear extraction. This however, seldom occurs.

In semisoft juvenile cataracts, such as complicated, traumatic and flocculent cataracts in patients over 30 years of age, we do the usual preliminary iridectomy. Then, in about six weeks, we perform a linear extraction just back of the limbus. Before making a section with the keratome, we use Berens'[5] technic of undermining the conjunctiva, and also Berens' untied suture. The cataract is now stirred up with a cystitome, after which it is washed out with warm salt solution of one-half the strength of physiologic sodium chlorid solution. Pillars of coloboma are replaced, the conjunctival flap is placed in position and slight traction on the suture will seal the lips of the wound. Now a drop of 25 per cent fresh solution of argyrol is instilled in the eye, also a 1 per cent solution of atropin, and the eye is bandaged. The eye is dressed each day and at each dressing a 25 per cent argyrol solution is used, also atropin when necessary. The patient generally leaves the hospital in ten days.

DANGERS OF THE CORNEAL ROUTE.

First: The chances for infection are greatly increased by the corneal route as you are selecting the weakest part of the eye for your traumatism. Lindner[6] in a recent paper, has shown that pneumococci are often present on the cornea of both the old and the young, and calls attention to the relatively greater incidence of infection in discission operations done thru the cornea.

The last statistics in the literature on this point, given by Asmus of Berlin, showed an infection of 5 per cent for corneal discissions, and for discissions thru the sclera, 0.3 per cent in 295 cases.

Second: Simple linear extraction of soft and semisoft cataracts, practicing the corneal section and discission at the same time, give rise to a percentage of entanglement of the iris in the corneal scar and prolapse of vitreous.

Third: Occasionally absolute glaucoma supervenes as a result of the iris and capsule in the corneal wound. I have seen such a case in consultation.

Fourth: You do a discission thru the cornea with the round pupil, and the lens absorbs leaving behind a thick membrane. How are you going to get it out without damaging the eye?

Fifth: If an opening has not been made in the posterior capsule by the Ziegler method, the iris will complicate the secondary operation.

Sixth: We still feel that the old method of going thru the cornea is always fraught with danger. Tuto, of Spain, in writing of the old way of operating for juvenile cataracts, calls it the antique method, while the writer, in 1921 at the American Medical Association meeting, called it the obsolete way.

ADVANTAGES OF THE NEW WAY.

First: In preliminary iridectomy, I feel surer of my ground, it is safer for the patient if several operations are necessary or if complications arise. It leaves the eye stronger and minimizes the risk to the patient in the years to come. It enables me, with safety to the eye, to do all my operations just back of the limbus. With an iridectomy, one obtains a dilation of the pupil sufficient to facilitate every kind of maneuvre within the field of the pupil. One can make an extensive opening in the capsule without damaging the iris, which diminishes the danger of prolapse of the vitreous later on. Iridectomy also decreases the possibility of glaucoma which might occur fom swelling of the lens; a condition which not infrequently occurs from a solution of lens tissue in the aqueous. The principal argument adduced against iridectomy in general, in the extraction of juvenile cataracts; is the esthetic and optical defect of the coloboma, which has only a very relative value indeed and should not be considered.

Second: No reaction to speak of from the discission operation, as the swelling of the cortex is in the anteroposterior direction, also we have the

extra space above the coloboma which lessens the pressure from undue swelling of the lens.

Third: If linear extraction has to be done much less astigmatism and better vision are obtained by the subconjunctival limbal incision.

Fourth: No complications as a rule. If swelling of the lens produces too much pain, or if secondary glaucoma becomes too pronounced, we do a linear extraction just back of the limbus thru our coloboma without any entanglement of the iris or capsule.

Fifth: No infections—safety—with no failures after an experience of 10 years, with this operation for juvenile cataracts, spaced in two stages.

40 East 41st Street.

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NOTES, CASES, INSTRUMENTS

PERICENTRAL FOLDS IN DESCEMET'S MEMBRANE, FOLLOWING PARENCHYMATOUS KERATITIS.

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With but few exceptions, the presence of folds in Descemet's membrane may be construed as a definite evidence of a lowered intraocular tension. An increase in the intraocular tension evidenced by a steaming of the epithelium may coexist with folds in Descemet's membrane. In these cases, fluctuation in tension has occurred, a hypotonia had existed and the folds had not had opportunity to disappear. This is possibly because of the presence of a lymph fluid under the wrinkles. Folds in Descemet's membrane are found in instances of a general reduction in the size of the eyeball as a whole, such as occurs in atrophy and phthisis bulbi. They may also be seen situated radially to old scars of the cornea due to contraction.

However, the most frequent cause of folds in Descemet's membrane is a lowering in the intraocular tension. They are, therefore, always present directly after perforating trauma and operations such as cataract extraction and iridectomy. The more uncomplicated and mild the pathology following perforation of the eyeball, traumatic or operative, the more transient is the symptom of folding of Descemet's membrane. Hence its rapid disappearance in cases which present an uneventful recovery.

Folds in Descemet's membrane are common in uveitis with fluctuations in intraocular tension. If they occur after contusion of the eyeball, or retinal detachment, their presence is probably secondary to a hypotonia due to a cyclitis, which accompanies this condition. That mild uveal changes are constantly present in cases of detachment of the retina is shown by a commonly seen leucodescence of the aqueous. This is an evidence of a change in character of this fluid. It is an alteration in the viscosity due to the addition of colloids or albumins.

Folds of Descemet's membrane are also quite common during the evolution of parenchymatous keratitis. They may be irregular, radial or concentric. Concentric pericentral folds of Descemet's membrane in parenchymatous keratitis in all probability are prone to occur only in cases where the posterior

corneal surface is covered by a central dense granulating network of exudation. This exudative mass is composed of round cells, fibrin and leucocytes. I will briefly describe two cases typical of this:

L. G., aged 25, suffered an eleven month siege of parenchymatous keratitis in his right eye. He came to me in the later months of this attack. He then presented a large central, deep, posterior corneal exudation. The peripheral zones of the cornea were clear. After seven years, this central corneal area is fairly well cleared up, but the cornea shows a multiple concentric wrinkling of Descemet's membrane and a few deep vessels. The corneal zone within the concentric folds here and there shows slight evidences of an amorphous endothelium.

Case II. Miss E. W., age 29. Two older sisters suffered a parenchymatous keratitis during the late second and third decades of life. They gave positive blood Wassermann's. Owing to my having treated these sisters, I had opportunity to observe the onset of parenchymatous keratitis in their sister from its very incipience. This patient gave a negative blood Wassermann. The incipience was manifested by epithelial dew like changes—a thickening of the cornea at the limbus, as well as irregularity and probable ablations of the endothelium. The course was not unusual for eight or nine months. At present, the central posterior corneal surface shows a dense disc shaped clump like deposit. The cornea here is comparatively clear and of normal thickness, while the exudative mass shows an added thickness equal to that of the cornea itself. Radial traction lines of Descemet's membrane were visible two months ago, and at present there are definite evidences of the evolvement of many concentric folds in Descemet's membrane.

Vossius, some forty years ago, described a form of annular keratitis as a distinct clinical entity. In these cases he first described the existence of concentric folds. This annular type of keratitis is now known to be a specific atypic form of parenchymatous keratitis. Dimmer, in 1901 and 1905, drew attention to concentric gray, cloudy folds of the cornea, following parenchymatous keratitis. He said they may persist for life. At present we are certain that the folds are strictly limited anatomically to Descemet's membrane. The socalled striped keratitis following cataract extraction, as is well known, is limited to folds in the same membrane.

The object of this paper and the citing of these cases is to show the possible relationship existing between dense central postcorneal exudative masses and the development of more or less permanent concentric pericentral folds in Descemet's membrane.

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VOSSIUS RING CATARACT.

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In 1924 Dr. William Zentmayer of Philadelphia published a short paper on "The Pathogenesis of Vossius Ring Cataract (A. J. O., v. 7, p. 676) in which he reported a case that seemed to show this condition "can result from the deposition of blood on the anterior capsule". The following case supports this view:

F. B., a boy 13 years old, was struck in the right eye by a BB shot, discharged from an air rifle at a distance of about 40 feet, 12/28/25.

One hour after the accident there was a small hemorrhagic area over the ciliary body, at about 8 o'clock. The conjunctiva was chemotic, there was a moderate hyphemia and the pupil did not react. No red reflex was visible with the ophthalmoscope. Treatment consisted of atropin, holocain and metaphen instillations, and hot fomentations. X-ray plates revealed no opaque body in the globe or orbit.

The eye gradually improved, and 1/2/26 a typical Vossius ring cataract was observed, apparently the size of the pupil at the time of his injury. This gradually faded away, and when he was discharged, 1/16/26, was almost imperceptible. At present the eye presents no other abnormality, and vision is 6/6 plus.

MICROPHTHALMUS, MIOSIS AND CALCIFIED LENS.

J. J. HORTON, M.D.

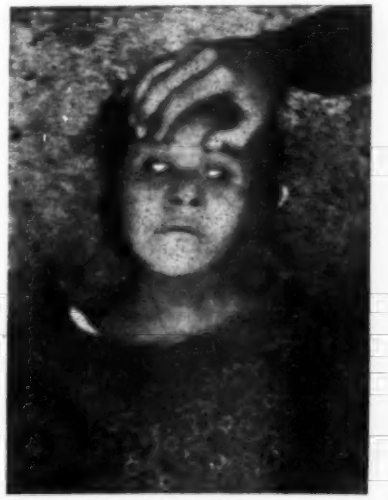
EAGLE PASS, TEXAS.

Augustina Luna, Mexican girl, age 9 years, blind in both eyes since birth. The eyes are small and sunken, and the orbital regions of both sides have not kept pace with the other parts of the face in growth.

Right: The lids are small, in keeping with the size of the eye. Conjunctiva normal. The globe is much smaller than normal. The cornea is oval, measuring 8 mm. in the horizontal and 5 mm. in the vertical diameter. It is clear. The temporal third of the iris is muddy in color, and is in contact with the cornea. The remainder is of normal dark brown color and is healthy in appearance. The nasal part of the anterior chamber is very shallow. The pupil is 1 mm. in diameter and is torn slightly at 8 o'clock, where the iris is in contact with the cornea. It is round, except for this little tear. It does not react to the usual stimuli or to atropin or cocain. A chalky white object occupies the pupil.

Left: Lids and conjunctiva as in R., cornea round and 7.5 mm. in diameter. Anterior chamber very shallow. Iris appears normal. Pupil 1 mm. in diameter. It does not react to light, accommodation, atropin or cocain. It is also occupied by a chalky white object.

The movements of the eyes are full and conjugate to right or left, but the patient has practically no control of them in the up or down movement, not being able to hold them in position long enough to be photographed well.



Figures 1 and 2. Microphthalmus, miosis and calcified lens. Congenital defects. Free turning of eyes to right and left.

Both eyes: Corneal incision with keratome, enlarged with pince-cisseaux; optical iridectomy; removal of calcified lens with hook and forceps. No results so far as vision is concerned. The parents would not permit the enucleation of either eye "for the advancement of science."

SOCIETY PROCEEDINGS

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Section on Ophthalmology.

December 17, 1925.

Dr. T. B. Holloway, Chairman.

Postlethargic Encephalitic Muscle Paralysis.

Dr. Edward A. Shumway and Dr. Franklin L. Noyes showed a case of paralysis of downward movements and of convergence, with paresis of accommodation three years after an attack of lethargic encephalitis. The patient, a boy of 17 years, had diplopia from the beginning and showed a mask-like rigidity of the face, tremor of the right hand, and distinct disturbance of mentality and disposition. The paralysis of downward movements and convergence was complete; there was some limitation of upward movements, especially of the right eye. Lateral movements were full and nystagmus was present. The vision and eyegrounds were normal. Pupils were unequal, and the reflexes were sluggish. Statistics showed that 45 percent of cases of encephalitis showed involvement of the eye three years after the onset. Paralysis of convergence was the most common, occurring in 66 percent, and paralysis of accommodation in 26 percent. Associated disturbance of upward and downward movements, either singly or together, was quite common in the acute stage but was usually fleeting, and as a permanent effect was very unusual. Dr. Shumway discussed various theories as to the location of the lesions and said that the majority of authors placed them in the nuclei in the neighborhood of the corpora quadrigemina, with disturbance of the fibers of association between the individual nuclei, or between the nuclei and higher centers controlling the associated movements, which it seems necessary to assume. Where the paralyses are fleeting, the lesions may be cortical.

Discussion. Dr. Warren S. Reese asked Dr. Shumway whether in this case the pupils seemed to react more to monocular accommodation than to attempted convergence. He was interested to note in the last Journal of Ophthalmology that in a case shown before the Chicago Ophthalmological Society, Dr. Suker drew the same conclusion that he did in the case he presented at the last meeting of this Section, namely, that the reaction of the pupils when looking at a near object, was more likely a convergence than an accommodative reaction. The difficulty of determining this definitely is that these cases usually have accommodation affected as well as convergence tho not to the same extent.

Dr. Shumway in reply said the reaction of the pupils to light was very slightly sluggish and no reaction to accommodation could be detected.

Juvenile Glaucoma.

Dr. William Zentmayer exhibited a case of juvenile glaucoma in a male, aged 20 years, who was admitted to the Wills Hospital December 7, 1925. He stated that his vision had been good until three weeks previously. It is probable that the reason for limiting the poor vision to so short a time was the fact that at that time he applied for a change of glasses and found that the sight in the right eye was almost gone. He had slight pain in the right temporal region at times, and occasional halos. His father had bilateral glaucoma for which operation was done. He believed his brothers and sisters had good vision. Right eye pupil was dilated to 9 mm. and was inactive. Cornea appeared clear and was anesthetic; the rest of the media was clear. There was an exceedingly deep glaucomatous cup and narrow halo about the disc. There was a spontaneous arterial pulse affecting almost the entire distribution of the retinal vessels. The veins were engorged, especially the superior temporal. Anterior chamber was very deep. Left eye—sensibility of the cornea diminished, pupil 2½ mm., iris prompt to light. There was no glaucomatous cup. The slightest pressure on the globe produced retinal arterial pulse. Anterior chamber deep. V. R.E. 3/60; L.E. 6/15. Tension right eye—65; left eye—57 mm. Hg. (Schiötz tonometer). It was impossible to determine any field of vision for the right

eye. Ten days later the tension in the right eye was 60 and in the left 51 mm. Hg. and the vision in the right eye 6/22 and in the left eye 6/5. The field in the right eye showed a quadrant on the temporal side with preservation of fixation and slightly enlarged blind spot. In the left eye the field was concentrically contracted and the absolute scotoma of the blind spot was within normal limits, but there was a zone of relative scotoma of about 5 degrees around it. The Wassermann was negative. There was acute purulent ethmoiditis and diseased tonsils. Despite the use of 1% solution of eserin the tension remains high, fluctuating between 63 and 75 mm. Hg. in the right eye, and 38 and 57 mm. Hg. in the left eye. It is contemplated to continue the eserin treatment and to have the ethmoidal and tonsillary inflammation attended to before operating upon the eyes.

These cases are quite unusual and this one is exceptional in the exceedingly high tension and unusual extent of the arterial pulse wave. The condition is hereditary and shows the phenomenon of anticipation.

There are some who believe that in cases of glaucoma in the young, it is probably of a secondary nature, but this seems scarcely logical when one considers that this type of glaucoma, particularly, is likely to be hereditary. Nevertheless, there is a possibility that the general circulatory condition of the eye may be improved by removing the nasal and tonsillar foci of suppuration.

Discussion. Dr. Frederick Krauss felt that in all suppurative conditions, the primary object to be accomplished is free drainage as rapidly as possible. Nothing relieves acute or chronic suppurative sinusitis as quickly as surgical intervention. In view of the seriousness of the ocular condition in Dr. Zentmayer's case, it would seem that immediate action would be preferable to dependence upon medical treatment.

Dr. Zentmayer in closing said that he quite agreed with Dr. Krauss that the proper treatment of purulent ethmoiditis was operative drainage, that any medical treatment given to accomplish drainage would only delay the inevitable.

Bifocal Trial Case Lenses.

Dr. J. Milton Griscom exhibited a set of ultex bifocal lenses designed to be used in a trial frame in conjunction with the ordinary trial case lenses.

Discussion. Dr. L. Waller Deichler said he wished to thank Dr. Griscom for calling his attention to what he believed would prove a valuable addition to his trial case. Frequently he has been perplexed in presbyopia, after the correction of the near vision, by the difference in the focal point with the lens in the trial frame and in the finished bifocal lens. Again the question whether the patient, who has never worn a bifocal lens, will be happier in the finished product or with a separate pair of glasses for near work, has also proven perplexing. Then, too, during the examination of those accustomed to wearing bifocals, frequently there is shown a tendency to tilt the head backward so that the lower portion and not the optical center of the correction lens is being used. While the use of a triple cell trial frame overcomes this to a definite extent, it is not always satisfactory.

Dr. J. Hiland Dewey said that the optician, William Darling, furnished him with similar lenses eight years ago and he has found them quite useful in demonstrating to the patient the difference in the addition for a reading glass and that which they might require for a vocational glass.

Monocular Color Blindness.

Dr. William F. Bonner stated that cases of monocular color blindness recorded have been few in number. This paper will be published in fully in the July number.

Discussion. Dr. Burton Chance said he was grateful to Dr. Bonner for bringing up the subject of color deficiency manifested in the vision of one eye only, for such cases are extremely rare, if, indeed, it is possible for it to be present in one eye and not the other thru congenital fault. Only about three times has it been reported. In his own experience in a very large number of examinations, he has not recorded a single instance. It is his con-

stant routine to examine each eye separately. Not seldom has he found marked variations in the color responses of the two eyes. He was, therefore, of the opinion that had Dr. Bonner's case been subjected to varied laboratory tests, color deficiencies would have become manifest in the grossly unaffected eye as well as in that which showed such pronounced faults.

Dr. Posey, speaking for the Committee from the A. M. A. which submitted standards of visions for automobile drivers, said that while it would have been very desirable to include tests for color blindness, it was deemed impracticable to do so. The tests involved such a multitude and so many would have been disqualified by color blindness, that it would have been impossible to have had standards rejecting the color blind, accepted by the Commonwealth.

Pulsating Exophthalmos.

Dr. William M. Sweet exhibited a man, aged 34 years, who received a blow on the left side of the head by some blunt instrument in the hands of a thief in November, 1924. He was removed to a hospital several hours later and was unconscious for 12 hours. There was bleeding from the left ear. Six weeks later the left eye began to gradually turn upwards, without exophthalmos. Both eyes began to push forward 9 weeks after injury, the protrusion being more marked on the left side. He was under treatment in a hospital from December 16th to March 22nd. The reports made during this period showed medical, neurologic and nose and throat examinations negative; no fracture of the skull by the X-ray, blood and spinal Wassermann negative, and the eyegrounds of both eyes normal. No bruit was found by the hospital physician, nor did the patient notice any unusual noises in the head. While in the hospital two operations of excision of the edematous conjunctiva were performed. Photographs made at this time showed bilateral exophthalmos, the left eye probably slightly more prominent.

In May, 1925, six months after the injury, he first noticed "pumping" in the right eye, which has since continued. The exophthalmos of the left eye gradually subsided, the right eye remaining prominent.

In November, 1925, he was admitted to Jefferson Hospital. There was marked exophthalmos of the right eye, moderate of the left, with ectasia of the conjunctiva of both eyes, especially of the lower lids. The protrusion of the right eye increased with each heart beat. Exophthalmometer measurements showed R. E. 28 to 30; L. E. 18. Rotation of right eye limited slightly above, below and outward, nearly abolished inward. Pupils R. E. 3.5 mm.; L. E. 3 mm.; both react 1 mm. R. E. media clear, optic disc with preserved cupping; old inflammatory exudation surrounding margin; veins full and tortuous; arteries slightly smaller than normal. L. E. No marked fundus changes, altho veins tortuous, but less than the right eye. R. E. V. 10/200; L. E. V. 20/40. All physical tests normal. The bruit clearly heard by the patient was noticed over the right eyeball, the brow and inner margin of the right orbit, and slightly beyond the median line. The patient found that by pressure at the inner angle of the orbit, he was able to abolish the bruit. Dr. Thomas A. Shallow saw the patient in consultation with a view of operative interference.

Discussion. Dr. Thomas A. Shallow said that this case presented two unusual features; first, exophthalmos appearing first in the left eye and shortly afterwards in the right eye, so that within two weeks a double exophthalmos was present; and second, the late origin of the bruit.

The first symptom of pulsating exophthalmos is usually bruit. In this case the bruit did not manifest itself for over four months after the accident and three months after the appearance of the exophthalmos.

A bruit was noticed over the right eyeball and the right frontal sinus and a thrill at the inner margin of the right orbit. The bruit was distinctly audible to the patient. The thrill was transmitted toward the left part of the head somewhat beyond the median line.

The patient is able to abolish the bruit by pressure on the inner aspect of the nose adjacent to the eye.

Several months later the patient noticed that the left eye was not as prominent and at the present time there is slight exophthalmos as compared with the right eye.

The patient was admitted to a hospital for treatment in December 1924, one month after the accident. At that time the patient did not hear a bruit himself and if a bruit had existed it certainly would have been found by the hospital physician. The patient underwent operation and a portion of the swollen conjunctiva was removed from each eye. There was still bilateral exophthalmos and the conjunctiva on each side was swollen. Photographs exhibited by Dr. Sweet leave no doubt that bilateral exophthalmos did exist at that time. The first problem before any surgery was contemplated in this condition was to determine if possible, the location of the arterio-venous fistula. An explanation of why the exophthalmos receded on the left side and then developed and persisted on the right side, might be helpful. Was the left sided exophthalmos due to a hemorrhage behind the orbit? The history shows that the exophthalmos on the left side did not manifest itself for one month after the accident. If the exophthalmos had been due to hemorrhage its appearance would have been manifest very shortly. It could not have come on at the time when the hemorrhage, if it had existed, would have been practically absorbed. Did this patient have an arterio-venous fistula on each side? If we consider this possible, then, in the absence of the thrill and bruit at the present time, a spontaneous cure of the arterio-venous fistula had occurred on the left side.

He believes that the arterio-venous fistula was on the right side of the head and had been on that side only. The thrill and bruit were most manifest on the right side of the head over the frontal sinus points to the right side as the location. The recession of the left eye was probably due to the fact that the communication between the carotid artery and the cavernous sinus on the right side was in close relation to the origins of the circular sinus. A small tear in the carotid let blood flow into the right cavernous sinus directly opposite the origin of the circular sinus so that at least a portion of the arterial blood stream went directly across thru the circular sinus into the ophthalmic vein of the left side. Later, either the carotid opening enlarged and all the blood then flowed into the right cavernous sinus or else a curative clot formed in the circular sinus or in the left ophthalmic vein. On account of the distance to the left side from the arterio-venous communication on the right side, the slow circulation of the venous blood, the left superior ophthalmic vein in all probability became thrombosed and a spontaneous cure was practically effected on the left side. With the thrombosing of the left ophthalmic vein the full force of the blood passed directly to the right ophthalmic vein at which time the bruit probably manifested itself. He, therefore, recommended the ligation of the common carotid artery in the triangle of necessity and not ligation of the common carotid higher up or of the internal carotid. The principle of Halstead, who said that the nearer to the central organ of circulation the ligature is applied, the greater the possibility of the establishment of collateral circulation, should be applied in this case.

Tumor of the Orbit.

Dr. Posey exhibited a case wrongly diagnosed for a time as "Disease of the sinuses," which occurred in a nineteen year old Jewess. The growth, the size of a horse-chestnut, had occupied the upper portion of the orbit and had given rise to quite marked exophthalmos. X-rays of sinuses and orbit were negative, but a rhinologist had opened all the sinuses in the conviction that the orbital condition was secondary to a disease of these cavities. After several weeks of observation, operation was decided upon and the tumor, a spindle celled sarcoma, was removed by Dr. Posey, without difficulty thru an incision made just below the orbital ridge. Recovery was rapid and complete, only a faint scar remaining.

Dr. Posey said that twenty-five years ago ophthalmologists were busily engaged in calling attention to the frequency to which orbital affections are secondary to sinus involvement; today there is difficulty in persuading some rhinologic colleagues that *all* orbital affections are not occasioned by disease of the sinuses. Many rhinologists are too loathe to declare the sinuses free from involvement until they have opened and explored all, a dangerous and usually a totally unnecessary procedure. Ophthalmologists should be better acquainted with the anatomy of the orbit and should not hesitate to undertake surgical intervention on that cavity, always, however, when possible, with the aid of a rhinologist.

Presentation of Hays Knife Needles.

Dr. Posey presented a set of Hays knife needles which had formerly been in the possession of Dr. Isaac Hays. He called attention to the prominence of this surgeon, who died in 1879 at the age of eighty-three. He was best known, perhaps, as an author, having edited several works on Diseases of the Eye, the most notable being his edition of Lawrence's celebrated treatise on Ophthalmic Diseases. Dr. Posey said the Hays knife is still in use at the Wills Hospital, altho Knapp's and Ziegler's modification of it are more commonly employed.

Dr. Posey also exhibited a note in Sir William Lawrence's handwriting on a bill from an ophthalmic instrument house in London, dated 1835, for instruments bought for his friend Dr. Hays.

Dr. Chance expressed his gratitude for the donation of Dr. Hays' instruments. He hopes that this may be the beginning of a useful collection of ophthalmologic objects, to form the nucleus of an historical museum. The Curator of the College Museum has promised to provide a case for whatever instruments we might collect and isolate the Section's deposit from the general collection, thereby to exhibit what might be of valuable interest to the ophthalmologist. Dr. Chance pleaded for further donations by the Fellows of their now abandoned instruments and other objects to be shown as milestones in the history of the development of ophthalmologic science and practice. One of the most valuable contributions to the success of the recent ophthalmologic congress in London was the truly brilliant collection of instruments and data displayed in the museum section. The Fellows of this College have themselves been foremost in America in Ophthalmology and their private belongings ought certainly to be preserved for future generations.

C. E. G. Shannon, Clerk.

THE BROOKLYN OPHTHALMOLOGICAL SOCIETY.

December 17, 1925.

Dr. Ralph I. Lloyd, Presiding.

Sympathetic Ophthalmia (Relieved by Nasal Surgery).

Dr. Ben Witt Key presented a case, whose initial injury was the lodging of a piece of steel in his right eye. This case will be reported in full in a later number of this journal.

Iridocyclitis Following Cataract Extraction.

Dr. William F. C. Steinbugler reported a case of iridocyclitis following cataract extraction in a woman of 38. Six weeks after performing combined extraction cyclitis developed in the operated eye, but cleared quickly, leaving vision of 20/25. Laboratory examinations made at this time were negative. Four months later, cyclitis developed in the unoperated eye and this has gone on to complete destruction of sight, with softening of the globe. Because of the history of night sweats, tuberculin was administered, altho it had no effect on the course of the inflammation. Can this be considered a true case of sympathetic ophthalmia, or, is it due to an undiscovered focus of infection?

Bilateral Glioma.

Dr. Robert M. Rogers read the history, course and autopsy report of a case of bilateral glioma which had been treated with X-ray and radium. Lantern slides, showing the patient at different stages of the disease; also

microphotographs of sections of the growth, were demonstrated.

Squint.

DR. JAMES A. KEARNY reviewed the varieties of squint, enumerating the symptoms of each and discussed the question of concomitant squint as it is the type with which oculists are most concerned. The chief causes are: errors of refraction; inequality of vision of two eyes; congenital weak fusion faculty and heredity. The incidence of squint is slightly higher in girls than in boys. Glasses should be worn constantly and may be prescribed at any age. He is of the opinion that if the degree of squint is greater than 15 and it has persisted for more than six months, glasses are of little help. Correction of fusion faculty is difficult because of lack of cooperation. He considers 9 years of age and over the accepted time for operative procedure. He advises complete tenotomy in cases of normal abduction and 15 degrees or less of deviation. If 30 degrees or more, tenotomy, followed by advancement of the external rectus. If abduction is deficient, he prefers advancement to tenotomy. For alternating squint, bilateral advancement is advised, and, in the event of this procedure not being sufficient, tenotomies (partial) of both internal recti. Tenotomies are of little help in divergent squint. Operations for correction of paralytic squint are of little value. He reported a series of 225 consecutive squint cases operated on by himself, in which parallelism was obtained in every instance.

WM. F. C. STEINBUGLER,
Secretary.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

December 11, 1925.

DR. CHARLES P. SMALL, President.

Rat Bite Fever.

DRS. E. SELINGER, CLARENCE W. RAINEY and ROBERT CROW presented this case for Dr. George F. Suker. The patient, a colored woman aged about forty-five years, was admitted to the hospital with a complaint of pain and swelling of the lids of the left eye and left side of the face, headache, fever, and chill.

She had been well until September 22, 1925. At three o'clock on the morning of this day she was awakened by a rat which bit her in the region of the left eyebrow. The wound bled considerably and was treated by local application of turpentine and antiseptic liniment. On November 11, the patient noticed that there was a slight pain and swelling of the upper lid, becoming progressively worse until the time of admission, November 17.

Physical examination revealed an adult colored female, aged about forty-five, well developed and nourished, subacutely ill. The pulse was 84, temperature 98.8°, respiration 20, blood pressure 100 systolic, 60 diastolic. There was an ulceration of the size of a dime on the left upper lid, great swelling and tenderness of the tissues of the upper and lower lids, and to a lesser extent of the supra- and infra-orbital tissues of the left side of the face in the zygomatic and preauricular areas and below the lobe of the left ear. There was enlargement of the left anterior and posterior cervical lymph glands, but no axillary or inguinal involvement. Teeth were all absent. Tonsils were reddened and full of crypts. Chest, breasts, heart and lungs were negative. There were striae albicantes, wide diastasis recti and palpable abdominal aorta. There was no skin rash or any noteworthy changes in the genitals, extremities, reflexes, bones or joints.

The laboratory findings showed leucocytosis 14,000; 4,600,000 red cells, with no abnormal forms; forty-five per cent polymorphonuclear leucocytes, 40 percent lymphocytes, 15 percent transisitional forms; no eosinophiles. The urine was negative for albumin, reducing substances and casts; Wassermann negative. A lymph gland was removed from beneath the left ear. The report of the bacteriologist, Miss Bertha Kaplan, was as follows: "There were a few motile spirilla seen in the dark field examination of the serous exudate from the raw surface of the left lid. Anaerobic cultures made in alkaline phosphate ascites broth

showed, after six days incubation, large numbers of motile spirilla. These varied in length from three to eighteen micra. The number of spirilla varied from three to ten. Motility was a very marked feature. The spirilla failed to stain with ordinary stains. Blood cultures were negative. Washings from the extirpated gland, gave negative results when injected into a mouse."

Subsequently, the course of the disease in the hospital was marked by progressive loss of weight, and successive febrile periods of a week's duration followed by a week of quiescence. The fever reached a hundred or hundred and one, and was accompanied by glandular swelling of the left side of the face and neck, axillae and inguinal regions, chilly feeling and malaise. No rash was evident on the skin or mucous membrane during any of the febrile periods.

A diagnosis of probable Rat Bite Fever was made. This disease, altho unusual and interesting, is by no means rare. It was first reported in the United States by Wilcox in 1840. Two cases were reported in European literature up to 1900. Since 1916, the disease has been considered a clinical entity, largely as a result of the investigations of the Japanese. Altho especially prevalent in Japan, Rat Bite Fever has a world wide distribution. Many cases have been reported in the United States in recent years.

Discussion. Dr. George F. Suker said that the lesion on the woman's eyelid, originally about 2.5-3. cm., had the typical appearance of a primary chancre. It also behaved like one. At first, because of rat bite, he was suspicious of attenuated bubonic plague, but that proved unfounded. Rat Bite Fever might be classified as an animal syphilis. It was caused by a spirillum and was a spirochete, and yielded promptly to antisyphilic treatment. It was not known whether or not it was the same spirochete found in lues, but it belonged to the same species, having some different characteristics. For a time he thought that a plastic operation on the lid would be indicated, but like all chancres and gummata, it resolved itself nicely without any interference.

Cataract Operation Under General Anesthesia.

Dr. William A. Fisher exhibited a patient, Mr. H., aged 68, whom he saw first September 27, 1924, with glaucoma and cataract in each eye. He was treated by miotics which reduced the tension, but when the miotics were withdrawn the hypertension reappeared. An iridectomy was performed in each eye and the hypertension disappeared. December 1st, a cataract operation was performed upon the right eye. The patient was so nervous that it was impossible to open the eye for nearly three weeks. Iridocyclitis followed, and the eye was removed. November 10, 1925, a canthoplasty was made on the remaining eye, but the patient was so nervous that it seemed impossible to remove the lens and attend to the after care with the hope of retaining any vision. November 21, under ether anesthesia, the lens was removed in the capsule without complication. There was no pain after operation, but the nervousness persisted, and it was impossible to inspect the wound until the fourteenth day after operation. No atropin or other treatment was given after the operation. The wound healed nicely and the operative result was perfect. The patient could now count fingers at six feet, insuring a useful eye. This operative result being a complete success, the case was reported to emphasize general anesthesia in cataract operations in extremely nervous patients. Under the circumstances it was fortunate that the lens was removed in capsule, because there was nothing left in the eye to cause postoperative complications which would necessitate opening the lids. Had the operation been performed in any other manner, the surgeon believed he would have regretted it.

Discussion. Dr. George Suker wished to take issue with Dr. Fisher for giving general anesthesia for cataract operation. For many years he had found it advantageous in unmanageable cases to employ scopolamin and morphin in graduated doses, repeated two or three times, and had had admirable success. In his opinion, in an individual of advanced years with se-

nile cataract, this was a safer form of anesthesia than general narcosis. It produced a perfectly quiet and comfortable sleep, as many hours as was required. It did away with retching and vomiting and nausea, which general anesthesia would tend to cause. Had this been his case, he would have administered 1/250 grain scopolamin and 1/12 grain morphin hypodermically for three doses at hour intervals, with the addition of four to six percent cocain locally. An absolute relaxation and perfect disposition on the part of the patient was assured.

Dr. William A. Fisher replied that the dosage of scopolamin and morphin given was insufficient, because it did not produce the desired result and he was afraid to attempt to remove the lens with the patient in his nervous condition. The dosage was not as great as suggested by Dr. Suker, and had that quantity been administered possibly the result would have been more satisfactory.

Folds in Descemet's Membrane.

Dr. Von Der Heydt read a paper on this subject published on page 435.

Discussion. Dr. E. V. L. Brown asked if these folds were on the back of the cornea.

Dr. Von Der Heydt said that in keratoconus there was a faint series of stripes, due to a shifting of deep corneal lamellae. These could not be confounded with large coarse Descemet's folds; the latter showed double contoured reflex lines. Folds that older pathologists thought were in the cornea proper were now known to be limited anatomically to Descemet's membrane.

Einstein's Theory of Relativity.

Dr. Koeppe read a paper on this subject.

Discussion. Professor A. C. Lunn said that when Dr. Small had asked him to open this discussion, he was afraid he should have to wait for the meeting to learn about the connection between the Einstein theory and color vision. It was encouraging, however, to remember that there lived a man, well known to everyone present, whose parents wanted him to be a lawyer, but compromised on physician. He studied physiology, became a leader in ophthalmology and acoustics and did important work in mathematic physics, which last was the field in which the relativity theory found its main setting. Science showed so many deep lying relations, that it might well be believed that everything was connected with everything else, and he would try to show why he thought Dr. Koeppe's paper might be really prophetic in more than one way.

Dr. Koeppe had in his address paid most attention to certain general features of Einstein's theory, believing that it should have a natural interest for ophthalmologists, not only in a general way, but also because some of its most striking aspects dealt with optic phenomena, as had been indicated. We might properly go further and look forward to future connections with physiologic optics which were hardly conceived. From the history of science, it might readily be that any advance in fundamental theory would have bearings that could not be seen for a long time. Clearly the reconsideration of fundamental physiologic theories might well bear on any particular problem, and there were good reasons for believing that the relativity theory was likely to be more important than was yet realized for understanding the physics of vision.

Since a discussor was expected to agree or disagree with the essayist, he wished to say that he agreed with Dr. Koeppe that Einstein's theory was really a simple thing, that is, in general outline. The same was true of Newton's. It was readily appreciated that the acceleration of a planet toward the sun might be feebler in proportion as the area of the orbital sphere was larger. But the detailed working out of the theories was another matter. There was a memoir dealing with the motion of the moon according to Newton's law, which had one formula one-hundred and thirty-seven pages long. Similarly, the mathematic working out of Einstein's idea required considerable mathematic machinery. But it might also be said that there was in many instances an important gain in simplicity as compared with previous theories, because so many of the ideas

of physics were brought closer to the underlying elements of geometry. Such things as the aberration of light and Doppler's principle were examples of optic problems whose treatment was thus simplified by the relativity method and there were many ways in which this theory had deepened the understanding of the phenomena of light, and thus prepared the way for further understanding of vision.

In order to suggest something of what might be looked for in the near future, the eye as a physical instrument should be considered. Being present in the capacity of a patient, any errors in nomenclature should be regarded as part of the clinical symptoms. It was agreed, presumably, that one reason for the ophthalmologist's interest in the eye was that the patient was interested in his eyes as instruments of observation. Roughly speaking, it might be said that the eye served to observe in the main two things, direction and color, and the scientific studies beginning with these two primitive ideas have led to the respective theories of geometric optics and of color vision.

The first of these, building on older knowledge about the straight line paths of light, about reflection and refraction, had developed into a scientific scheme so mature, that even to patients who had suffered the loss of the eye lens it was possible to restore a useful degree of image vision by glasses. The name of Gullstrand would at once occur as representative of what had been accomplished of late in the field of refraction. But even yet it would be premature to say that color vision was understood as well as the geometry of image formation, and in this field aid might be expected from such fundamental physical theories as relativity has already proved to be.

During many centuries of science, it was not known that light took time to travel from object to eye, in fact it was not always thought of as something that did travel at all. But when it was so thought of, it was seen that experiment indicated a straight line path as typical, unless changed by reflection or refraction. Then, when physicists began for definite reasons to think of light as implying waves of some sort, they were puzzled to account for the straight line paths and consequent shadows, by contrast with the case of sound waves which so easily bend around obstacles. But this dilemma was cleared up when it was found possible to show in several ways experimental grounds for calculating the lengths of the waves as something around 1/5000 of an inch. When we remember, also, that the velocity of light is about 186,000 miles a second, it can be seen that there are vast difficulties involved in finding out much in detail about what might be called the structure of light.

By the aid of intense illumination by special arc lights, and with specially designed shutters, it has been possible to make "instantaneous" photographs of projectiles in 1/10,000,000 of a second, according to late reports, a considerably shorter interval of time than usually occurs in any momentary photograph or act of vision. Yet even in that minute interval something like 60,000,000 waves enter the eye or camera. This again would show why it was so difficult to find out much about the nature of the individual waves and their mutual relations.

A large range of detailed observations had been gathered about the behavior of light under various conditions, about the kinds of light given out by particular substances under given circumstances, and about the relation of light to electric phenomena; and up to a certain point these had been fairly well interpreted by existing optic theories. These details were part of the great storehouse of information gathered by experimenters concerning the general properties of matter and the specific characteristics of the half million or so kinds of matter now known to the chemist. The mass of information was so enormous, that some radical improvement in simplicity and scope of interpretation, by way of some sweeping improvements in primary theories, seemed a vital need of science at the present time. It was of obvious interest, therefore, to note that the relativity theory was the largest unification of concepts thus far reached in the field of physics.

To see more specifically certain possibilities in the newer ideas, a parallel might be drawn with the case of sound waves. When one listened to a steady musical tone, the impression was that of

a uniform sensation, and tho the primitive judgments of pitch and quality, as well as loudness, might be clearly made, there was little direct suggestion of any reference to what might be called the time structure of the sound. Experimental analysis, however, had given physicists the best of reasons for interpreting sounds in terms of wave motions, and for assigning these differences between various sounds to differences in time-structure, particularly concerning various combinations of simple oscillations. Similarly in the case of light, the steady impression of color was interpreted by the physicists as due to the net result of a complex of minute and very rapid oscillations, which had been resolved by the spectroscope much more finely than by the eye, tho the eye was in some respects an especially sensitive instrument.

The relativity theory was partly characterized by its having introduced a closer affiliation between the concepts of space and time, so close in fact that it was often fairly called a four dimensional geometry. It could, therefore, make more free and fertile use of the analogies between space-relations and time-relations, and thus among other things give new points of view for reading the time-structure of light.

It was plain, therefore, that under its program might be expected new simplicities of fundamental ideas in optics as well, tho these might be only one item in the further understanding of the complex physiology of the eye. Undoubtedly, the presentation of this remarkable recent theory given by Dr. Koeppe would be long remembered by those who had heard it.

CLARENCE LOEB, M.D.
Secretary.

MINNESOTA ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY.

January 15, 1926.

DR. D. L. TILDERQUIST, Presiding.

Works of Johannes Evangelista von Purkinje.

DR. H. J. ROTHSCHILD read a paper on this subject.

Buphthalmus with Complication.

DR. V. J. SCHWARTZ reported the case of M. K., unmarried, female, aged 19. The first six months of her life she says she had normal eyes; then at six months she had "brain fever," whooping cough and measles; and after this, eye trouble was noted. About five or six years ago cataracts began to develop and these gave her some discomfort; but aside from this she has never had ocular symptoms except great loss of vision. She now can distinguish daylight from darkness and can make out street lights at night. She gets about her home readily doing her cooking, washing her dishes, cleaning house, etc. She has taught herself to play the piano by ear, and now is a pupil in the blind classes at the Webster School.

There is marked bulging of both corneae seen clearly from the front and from the side. Near the center of each cornea are a number of old, irregular, linear scars, probably due to stretching of Descemet's membrane. The anterior chambers are very deep. The right eye is of about normal size; the left is somewhat enlarged. By palpation, the left eyeball seems of normal or slightly increased tension; the right seems softer. The right pupil reacts to light; the left not appreciably. The right lens is completely cataractous; the left shows a number of sectors and an opaque area superiorly and temporally.

The fundi are not visible. The visual axes are about 15 degrees divergent. There is light perception in each eye, but not good projection. The eyeballs oscillate almost constantly.

There is no other eye trouble in the family to her knowledge.

The corneal enlargement is not distinctly conical in either eye; rather does it seem more or less spherical or globular. This fact, together with the enlargement of the left eyeball, points rather to a diagnosis of keratoglobus which is usually a part of the picture of buphthalmus, which, in turn, is most often accompanied by glaucoma. The tension in the left eye—the larger of the two—is indeed at the upper limit of normal, but that in the right eye is at the lower limit; a fact usually true of keratoconus.

The patient is also subject to epilep-

tiform attacks, preceded by aura of severe ocular twitching and jerking.

Discussion. Dr. W. E. Camp thought this a very interesting case, and that it was difficult to tell just what had taken place in the eyes of this patient. One got the impression, on looking at the cornea, that the opacities were partly superficial and might be due to exposure. It might also be due to stretching of the cornea.

Dr. Schwartz stated that the members might be surprised to know that this girl is almost 20 years old, but is greatly underdeveloped. She is past the age when a needling would be of maximum benefit in causing absorption of the cataract. He thought it might be tried in the right eye to see if it would help. Judging from the findings in the left eye, in which the cataract is but slightly developed, Dr. Schwartz said he questioned whether the patient's retinal receptive elements are in condition to give her good vision. Her light perception is very poor; she gets only light and shadows.

In regard to Dr. Camp's discussion, Dr. Schwartz said that at first glance he thought it was a case of true keratoconus, but on closer inspection the cornea is found to be almost globular or spherical so that he did not think there would be the same tendency toward superficial ulceration and localized corneal injury that there would be in a case of conical cornea.

Dr. Schwartz said he felt that this case represented an unfortunate combination of pathologic circumstances and that when he had coped with one there would always be another to combat.

He stated that the Wassermann reaction was negative.

Familial Cataract: A Study Thru Five Generations.

Dr. F. N. Knapp read a paper on this subject which will be published in a later issue.

Discussion. Dr. W. R. Murray asked about the mentality of these patients; also if there was a generation in which no cataract appeared.

Dr. Tilderquist stated that he had seen two of these patients in Dr. Knapp's office and the four eyes were remarkable in the uniformity of the opacities of the lenses.

Dr. Fulton stated that this most interesting family history of cataract, which had been so carefully worked out by Dr. Knapp, brought to mind the various theories of heredity, by means of which one tries to work out the origin of congenital defects. He said he remembered meeting a young lady, 17 years of age, at the School of the Blind in Faribault when making examinations there many years ago. He found she had congenital cataract in both eyes, the opacification being complete in both lenses. The cataracts were successfully removed, with excellent acuteness of sight. Two years later a young man was admitted to the same school, having lost one eye by trauma and the fellow eye by sympathetic ophthalmia. The two fell in love with each other and wanted to marry. The young lady inquired if there would be any danger of bringing forth blind children. She was an intelligent English girl, knew her family history well, and there were no cases of blindness on either side of her famliy for several generations back. Dr. Fulton said he did not think that heredity was to be considered in the case of the prospective husband, who had lost his eyesight as the result of an injury, so he told her he did not think there was any danger of producing blind children. Two children were born as a result of this marriage, both with totally developed congenital cataracts. Dr. Fulton said he neglected to state that both the husband and wife were unusually well developed physically.

Dr. Fulton said it is not easy to classify a clinical history such as this with any of our theories of heredity.

Dr. Knapp (in closing) said he considered the mentality of these people above the average. The older man, 66 years of age, is working every day for the city as a laborer. Mrs. Pauline J. does her own sewing and housework for eight children. She is anxious to have the second eye operated on. Stanley G. works in a hardware store. Dr. Murray asked if there was a generation with no cataract appearing.

There is a cataract all thru from the first to the fifth generation, that is transmitted thru both males and females. The younger as well as the older members of the families are afflicted.

WALTER E. CAMP, Recorder.

THE KANSAS CITY EYE, EAR, NOSE AND THROAT SOCIETY.

February 18, 1926.

DR. J. W. MAY, Presiding.

Classifications of Cataracts and Choice of Operation.

ALBERT N. LEMOINE classified clinically those cataracts impairing vision sufficiently to demand operative interference, as follows:

1. Congenital { Soft / Hard Calcareous
2. Juvenile or presenile { Soft / Hard Calcareous
3. Senile { Immature / Mature / Sclerosed / Hypermature
4. Traumatic { Result of old Uveitis / Glaucoma

Routine examination and preparation of patient before admission to the hospital are made. A lens protein test is made on all adults to be operated upon for immature cataract. The Van Lint injection and Verhoeff suture are used where an ordinary corneal incision is to be made. In patients below fifty years of age not sensitive to lens protein and having an immature cataract, he advocated a discission with a knife needle followed in about ten days by a linear extraction. If the patient is sensitive to lens protein an effort should be made to desensitize the patient and failing at this, either wait until it is mature or do a capsulotomy extraction with peripheral iridectomy. If the cataract is immature and patient is over fifty or if the cataract is hypermature, at any age do an intracapsular extraction with Verhoeff's forceps, making only a peripheral iridectomy if possible.

Traumatic cataracts were handled in the same way as other cataracts in patients of the same age. In cataracts complicated by synechias due to old uveitis, it was advocated to do an iridectomy followed by separation of synechias with an iris repositor followed by an intracapsular Smith Indian operation.

In those complicated by glaucoma a combination Lagrange and combined expression were used doing the intracapsular operation only if patient was quite sensitive to lens protein.

Discussion. DR. WM. KEITH read the discussion sent in by Dr. J. G. Dorsey, in which he quoted Noyes on complicated cataracts. Following are the indications for intracapsular extraction.

1. All cases in which it may be presumed that the capsule is stronger than its attachment.
2. Those in which the progress is extremely slow and in which there is usually some transparent cortex.
3. As a rule those coming on after iridocyclitis with posterior synechia.
4. Where there is a tremulous iris.

The intracapsular extraction is contraindicated in a patient with a cornea less than nine and one-half mm. in lateral diameter.

DR. ROBERT FORGRAVE mentioned the technic as used by Dr. Lancaster at the St. Joseph Clinic, i. e., instilling mercurochrome in the eye the night before and the morning of the operation and painting the face with it at the time of operation.

DR. HAROLD BAILEY emphasized the importance of studying the type of cataract one was dealing with, then selecting the most suited operation for the particular type. He also suggested that one should not refuse to operate on an eye with faulty light projection or fluid vitreous as in some of those the results are surprisingly good. The size of the incision is not important if the cataract is soft.

DR. E. E. PICKENS mentioned two patients past forty-five years of age in which the lens absorbed entirely, but he had never attempted to operate on cataracts in patients as old as those in whom the essayist advocated doing discission followed by linear extraction.

DR. R. J. CURDY said he considered only two types of cataracts, the hard

and the soft. The soft should be operated by discission and linear extraction. If at the time of discission one finds a hard nucleus it is easy then to do an ordinary extraction. All hard cataracts should have combined operation.

Dr. J. S. Lichtenberg mentioned the danger of doing a discission extending thru the lens because should it become necessary to do a linear or combined extraction there would be much danger of losing vitreous. He also emphasized the importance of studying the type of the cataract with the slit lamp and corneal microscope and doing the operation most suited to the occasion.

Dr. E. S. Connell preferred the thru and thru discission of the whole lens.

Dr. J. W. May objected to the cutting of the eyelashes before cataract operation, they are very useful in raising the lid in case of emergency. He also objected to the use of subconjunctival injection, preferring the instillation of 10 per cent cocain.

Operation for Pterygium.

Dr. Hugh Miller presented a patient on whom he had done a pterygium operation which he has been doing for the past fifteen years. In this operation he transplanted the pterygium from its position into a widened incision in the conjunctiva down and slightly out. The denuded area and the limbus were covered by normal conjunctiva from above and below.

Degenerative Changes in Corneal Scar.

Dr. Walter Small presented a patient who had been under the care of several oculists for 3 or 4 years for trachoma and corneal ulcers, beginning in 1907. From 1911 to 1921 he had little treatment except large quantities of yellow oxide of mercury ointment. He was treated several times in 1921 by Dr. Small, who noted then a large central scar on the right cornea. When next seen in 1925, this scar had an entirely different appearance. It was now infiltrated with a pearly grey, almost glistening deposit. The infiltration covered about two-thirds of the entire cornea and remains the same today. Dr. John E. Weeks examined the case here last October and made a diagnosis of "A degeneration of an old corneal scar, with infiltration of lime deposits".

Discussion. Dr. J. W. May, who had treated this patient over a protracted period many years ago felt now, that if he had done tarsal resection at that time, these symptoms would have been avoided.

Dr. E. E. Pickens was of the opinion that this operation has been overrated as a routine measure in trachoma and did not always give good results.

J. W. Kimberlin, M.D.,
Reporter.

MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

Section on Ophthalmology and Oto-Laryngology.

February 19, 1926.

Dr. W. T. Davis, Chairman.

Miliary Tuberculosis of the Choroid.

Dr. James N. Greear, Jr., in his paper, said that during the past two years he had made ophthalmoscopic examinations of 12 patients with tuberculous meningitis at the Children's Hospital in this city and the case he reported was the only one in which tubercles were found.

Manz of Berlin (1859) was the first to recognize that the nodules found in the choroid in acute miliary tuberculosis were of the same nature as those found in other organs of the body. Cohnheim (1867) reported a series of 7 cases upon which autopsies had been performed and in each of which the characteristic nodules had been found.

This first called attention to probable diagnostic value of ophthalmoscopic examination in suspected cases of miliary tuberculosis.

Cohnheim concluded from his findings that tubercles in the choroid must be a constant, or nearly constant occurrence in patients with miliary tuberculosis. Litten, however, found tubercles present in only 75 per cent of 52 cases examined.

Heinzel (1875) never saw tubercles in the choroid in 41 cases of tubercular meningitis which he examined with the ophthalmoscope; and the case found

in Gower's work was the sole instance in which they were found in 26 cases examined by Dr. Garlick of London.

While the early ophthalmologists believed that ophthalmoscopic changes in the choroid were rare in tubercular meningitis, Carpenter and Stephenson (1906) claimed to have found tubercles in the choroid in 50 per cent of their cases. Marple (1912) of the Babies Hospital of New York concluded that in tubercular meningitis, choroidal tubercles are the rule, reporting 100 per cent in 13 cases.

Dr. Greear said that in tuberculous meningitis one was dealing with a comparatively localized infection and if tubercles did appear in the choroid in the course of this disease it would seem that one was no longer dealing with a localized meningitis, but with the addition of a general miliary tuberculosis. Altho other recent observers have reported a very high percentage of patients showing ophthalmoscopic changes in the choroid in tubercular meningitis, he believed this was not the usual experience of ophthalmologists.

Discussion. Dr. Louis S. Greene said the case of Dr. Greear reported was the only one in which he had seen miliary tubercles in the choroid in several years, altho he had repeatedly examined the fundi of patients suffering with tuberculous meningitis. He further stated that he had never seen a case in which he believed miliary tubercles had occurred and subsequently healed. He mentioned the absence of vitreous opacities as a constant finding in miliary tuberculosis of the choroid.

Dr. John W. Burke said it had not been his experience to find miliary tubercles in the choroid in all cases of tuberculous meningitis but on the contrary they had been a rather infrequent finding.

Fields of Vision in Neurasthenia.

Dr. Carl Henning presented the case of Mr. A., a lawyer, who was admitted to Mt. Alto Hospital, June 30, 1925, for examination of his eyes.

He was hospitalized for gas and wounds from October, 1918, until February, 1919, mumps in June, 1919, ptomain poisoning August, 1917, influenza April, 1918, tonsillectomy August, 1919, appendectomy March, 1920. As a result of his gassing he was classed as tubercular, later changed to bronchitis.

His eye trouble started in March, 1918, following influenza. His eyes stung and watered, and his vision blurred. He was treated at Camp McClellan for 20 days; went over seas and his eyes continued to trouble him slightly. After a few days' study at the A. E. F. University in France, following his discharge, he noticed that print blurred and after an examination by army surgeons he was told to stop reading. He went to work in the Veterans' Bureau July, 1919, having been given 20 per cent disability on his eyes. He studied law and graduated.

When he presented himself at the hospital he complained that his eyes pained and stung and that he could not see to read except very close to his eyes. If he read a long time cramps occurred, extending from the eyes to both temples and then a very sore spot developed on the top of his head. He said that at times he seemed to be "looking thru milk". Rubbing the eyes and the application of hot water relieved this. The symptom was more noticeable on dark, cloudy days. Reading by artificial light caused his eyes to water and sting and next morning he would have a violent headache with nausea. Peripheral vision was good but central vision poor. With his glasses he could read Jaeger 8. Vision 20/100, not improved by glasses.

An immense amount of work was done by the resident physicians at Mt. Alto and by the consultants in all departments. All possible roentgen rays were taken, laboratory examinations were made with nothing found abnormal except the vision and the fields. Dr. Ballou, the resident ophthalmologist, took 12 fields on the perimeter and 18 fields on the Bjerrum screen at 30 inches and 60 inches, by daylight and by artificial light. Right eye vision 20/100; left eye vision 20/200 eccentric. Fundus normal both eyes. The neuropsychiatric service reports as follows: "There is not sufficient evidence of a neurologic character to in-

dicate the existence of disease of the central nervous system. It is felt that in the absence of such indications he should be handled from the standpoint of his ophthalmic disturbance. No neuropsychiatric diagnosis is made at the present time". The fields of vision in this case were the reason for bringing it before this meeting as it is very unusual to find a patient with these fields. He showed the oscillating fields described by Wilbrand who ascribed these fields to neurasthenia. DeReuss thought they were due to hysteria, but it seemed to be agreed that the hysterical fields were more apt to exist unchanged over a course of time while the neurasthenic fields are never quite alike. The following was my report as a consultant on this case: Vision right eye 20/200; vision left eye 20/200, eccentric. Fundus normal, both eyes. Fields, ring scotomata. Blind spots merged into the scotomata. Red field small; green field very small. Color sense weak on account of poor vision.

Practically the only abnormality found was in his vision and fields. The fields were the oscillating fields of Wilbrand and the authorities assign them to hysteria or neurasthenia.

In spite of the fact that the Neurological Department was unable to find anything wrong with his nervous system, other than the eyes, Dr. Henning suggested that this patient be treated as if his condition were neurasthenia.

Dr. Henning said that he felt that this case was curable but the fields were very unusual and undoubtedly causes for them existed which were not recognized.

Recommendation: "That he be treated neurologically for his eyes by suggestion, hydrotherapy, electricity, etc."

Discussion. Dr. Louis S. Greene said he had seen other similar cases on his service at Mt. Alto Hospital. However, they did not show the fields described by Dr. Henning.

James N. Greear, Jr.,
Secretary.

COLORADO OPHTHALMOLOGICAL SOCIETY.

January 23, 1926.

Dr. Wm. H. Crisp, Presiding.

The Importance of Einstein's Theory of Relativity and Gravitation for Physiology of the Eye.

Dr. L. Koeppe of Halle, Germany, read this paper which will appear in this Journal.

Retinitis Circinata.

Dr. Wm. C. Bane presented the case of Mrs. E. G. V., aged 74, first examined in February 1921, complaining of poor vision with the right eye and some aching of the eye at times. Vision with lenses: R. 5/15—1; L. 5/5—1. She was not seen again until November 1925, when she complained of vision of the right eye failing. Central vision poor. General field manifestly good. Vision was not tested with the perimeter. The best vision with the right eye with lens now is 5/60. (Left eye 5/5.) An examination under mydriatic revealed large mutton fat whitish notched areas in and around the macula. One mass of white lobules, somewhat triangular in shape, is located outward and below the disc. The retinal changes have evidently extended to the macula and are those of socalled retinitis circinata. The fellow eye is free from any plaques.

Dr. Bane also presented the case of C. F., male, aged 75, tailor, who applied for examination of his eyes Jan. 9, 1926. No eye ache nor headache, and has worn spectacles for forty years. Vision: R. 4/60; L. 1/120. Nasal respiration is poor. An examination revealed polypi blocking the nasal passages. Both lenses showed striated opacities. There were pigmented degenerative changes in the right macular region covering an area nearly a disc diameter in size. There were degenerative changes in the left macula and a large horse shoe shaped, white plaque made up of lobules with an arrangement typical of retinitis circinata almost surrounding the macula. Vision with the right eye after correc-

tion was 5/10. The left eye did not improve with a lens.

Discussion. Dr. L. Koeppe said in the differential diagnosis of retinitis circinata, one should consider that sometimes the development of a more or less typical retinal tuberculous periphlebitis of the region around the macula instead of the very periphery of the fundus, can cause a fundus image similar to this disease. Particularly is this true if the nerve fiber layer of the retina is undergoing a fatty degeneration in an oval like arrangement around the macula, in the absence of hemorrhages, and a profuse exudation around the veins. However, in tuberculous periphlebitis usually one will find some typical peri- or paravenous exudations in the very periphery of the retina facilitating the differential diagnosis. Such exudates are most frequently found at the branching points of the small veins or along the latter surrounding them in the form of swollen greyish or white sheaths. In addition, one always will find numerous white blood cells in the vitreous early. They are not so numerous in cases of genuine retinitis circinata. Also, some erythrocytes or hemosiderin crystals may be visible if the case is one of tuberculous exudate around or along the small retinal veins. With the contact glass and corneal microscope and slitlamp, one can study those points of the diagnosis easily if the vitreous is still transparent enough.

Not only in young adults, but also in advanced years from 50 to 60, a tuberculous periphlebitis may be found with or without early hemorrhages into the retina or vitreous. Also, one may mistake this affection for a hemorrhage caused by arteriosclerosis of the retinal vessels. The slitlamp examination may protect the observer from errors in this important diagnosis.

Dr. Edward Jackson noticed that in the two cases shown, the wreaths of white exudate were not complete. The masses seen, occupied only small parts of what would have been a complete ring enclosing the macula. This was also true of most cases that would be classed as circinate retinitis. Similar white exudate, probably showing fatty degeneration, had been present in some of the cases of retinal tuberculosis which he had reported and in others which he had seen, scattered like isolated tufts of cotton in parts of the fundus adjoining the tuberculous lesions, but not distributed so as to form a wreath; as Prof. Koeppe had mentioned. Similar white deposits had been seen in retinal disease, following influenza, in the neighborhood of retinal hemorrhage.

In tuberculous disease and in influenza, these white spots ultimately disappeared after several months or a year or two; and they commonly were followed by almost complete restoration of function, standard vision being regained. In circinate retinitis, he had seen at least one case of complete disappearance of all parts of a complete white wreath; and in other cases there had been general absorption of the white exudates. But in no case was this disappearance accompanied or followed by restoration of vision. In these cases, lesions had been found in the macula; not conspicuous, but permanent. These macular lesions seem to be the essential, serious lesions of retinitis circinata. The white masses formed a ring around them. They were much more striking for a time, but later disappeared, leaving the really destructive changes in the macula unaltered.

Abrasion of Cornea and Conjunctiva.

Dr. Wm. M. Bane demonstrated the staining of a rabbit's eye with fluorescein, after abrasions of the cornea and conjunctiva as seen with the Black-Shields ophthalmic lamp, using a red free filter.

Discussion. Dr. L. Koeppe said that with his new Universal Slitlamp, the optical system may be exchanged for a similarly arranged optical combination of quartz lenses and a substitution of an arc lamp. All blinding heat beams are filtered out by interposition of a quartz chamber filled with water and a uviol glass filter. This filter allows only the passage of wave lengths of from 310$\mu\mu$ to 420$\mu\mu$ and so a very dark violet colored slit image is obtained of a high intensity of ultraviolet beams which is not irritating to the tissues of the eye.

With the corneal microscope, one

can study all the fluorescent phenomena of the living eye under normal and pathologic conditions. The living, normal sclera, cornea and lens show especially a strong fluoresence of a greenish blue. Under certain pathologic conditions, one may observe the fluoresence of calcium and cholesterin crystals in the tissues of the living eye. Furthermore, in a patient exhibiting an iritis or a glaucoma, solutions of fluorescein or uranium given by mouth will appear in the anterior chamber in less than twenty minutes.

This system of quartz lenses and the arc light will show the fluorescent phenomena of the living eye and erosions of the cornea or conjunctiva much better than an arrangement of an ordinary ultraviolet absorbing glass lens with the interposition of a red free filter.

This same arrangement of the quartz lenses and the arc light of Koeppe's Universal Slitlamp is very useful for ultraviolet radiation of all tuberculous or exudative conditions of the conjunctiva, cornea and iris. One removes the slit and interposes an iris diaphragm. The conjunctiva may then be radiated by a dark violet colored round field containing a high intensity of ultraviolet light. The diameter of this field may be changed at will by the narrowing or enlarging of the iris diaphragm. Eyes with the pathologic conditions mentioned above should receive 15 to 20 minutes radiation daily.

WM. H. CRISP, Secretary.

ST. LOUIS MEDICAL SOCIETY. Ophthalmic Section.

February 12, 1926.

DR. MAX JACOBS, Chairman.

Bilateral Ptosis.

DR. WM. F. HARDY presented a case operated on by Dr. Walter Lancaster of Boston.

Chronic Trachoma with Entropion.

DR. AMALIE M. NAPIER presented a case which had been finally cured by numerous operations.

Visual Acuity After Cataract Operation.

DR. C. H. HOBART reported the results on the two cases operated on by Dr. Lancaster while a visitor in St. Louis.

Hyperphoria of High Degree in a Child.

DR. C. W. TOOKER reported a case of hyperphoria of high degree in a child aged eight, who had complained of a little pain in her eyes and vertical diplopia at various times. Her vision was normal with a hypermetropia of one diopter, right and left. Her left eye usually seemed lower than the right but frequently the eyes were parallel. Fixating with her right eye, the left eye under cover turned upward and the amount of vertical deviation of either eye was equal. No paresis of any ocular muscle could be discovered. The right hyperphoria varied between 8 and 20 degrees and she had only occasional binocular vision. The case corresponded to the type of concomitant vertical squint in hyperphoria of very high degree described by Duane.

Because of the age of the patient, the varying amount of hyperphoria, and the normal power of all the ocular muscles it was thought inadvisable to operate at the present time.

Discussion. DRS. GREEN AND WIENER advised operation in this case with lengthening of the superior rectus and advancement of the inferior rectus.

Trachoma.

DR. N. R. DONNELL read a paper on "Work Seen Recently at the Rolla Missouri Trachoma Hospital" which will appear later in full in the Missouri State Medical Journal.

Dr. Donnell said in part: Dr. Green and I accepted the kind invitation of Dr. Paul Mossman who is in charge of the Government's work on prevention and treatment of trachoma in Missouri. The Rolla Hospital is one of three such operated by the Government, the others being at Russellville, Arkansas, and Knoxville, Tennessee.

I might mention here the types of individual in which trachoma is most often found, for having seen a good deal of trachoma in other parts of the state, I was rather impressed. They are, for the most part of a rather low order of intelligence, many being unable to read. This is not to be won-

dered at for they are handicapped by poor vision and many of them come from the isolated districts where they have little contact with the outside world and little opportunity for advancement. But many of them display a native shrewdness that at times is surprising, and cured of their distressing malady, many would soon become useful citizens and worthy of all the effort which is being put forth in their behalf.

The treatment as administered by the doctor in charge consists in, first, a complete eversion of the lids, this being accomplished by using an ordinary glove buttoner which brings out the conjunctiva in the retrotarsal fold better than any method I have seen used, then a gentle brushing of the conjunctival surfaces of the lids with 4 per cent silver nitrate followed at once by a free irrigation with a warm saturated solution of boric acid in normal saline. After this treatment and irrigation at 10 o'clock, the eyes are again irrigated freely by the nurse at 1 o'clock, again at 4 o'clock and again at 7 o'clock. They are likewise irrigated at 7 a. m. the next morning and 10 o'clock. The treatment is repeated by the doctor as on the previous day. The more acute cases are treated entirely in this way, the more advanced cases of certain types are treated by a form of grattage which we did not see but I inferred was similar in procedure to that which many of us saw done by Dr. McMullen here in St. Louis. The cases complicated by trichiasis are operated on and from the description I inferred this operation to be one in which a segment of the skin of the lid was excised, a triangular wedge laterally across the tarsus removed and the skin drawn together with sutures. We saw some cases on whom this had recently been done and the results seemed to be very good.

Attached to this unit is Dr. Ida Bengston, who is a trained bacteriologist and pathologist from the Biological Laboratory in Washington and selected because of her attainment and fitness for this work. She has her laboratory in one of the State Buildings used as a laboratory by the school and I believe she in turn gives some special lectures to the students. She seems well qualified and equipped to carry on the research work incident to trachoma. She showed us many beautiful slides both from cultures and cut sections and while it was intimated that she has some very interesting leads, she is very modest and very reluctant to make any definite statement of her accomplishment at this time. I rather expect something of interest later.

Discussion. Drs. Wiener and Green told of their visits to the hospital and concurred in Dr. Connell's views. Dr. Green showed lantern slide pictures of the hospital.

The following officers were elected:
Chairman—Dr. N. R. Donnell.
Vice-Chairman—Dr. J. F. Hardesty.
Secretary—Dr. Leo L. Mayer.
Treasurer—Dr. C. P. Dyer.

Leo L. Mayer, M.D.,
Secretary.

ROYAL SOCIETY OF MEDICINE, LONDON.

Section of Ophthalmology.

February 12, 1926.

Sir Arnold Lawson, K.B.E., President.

The President made touching reference to the early death of one of the honorary secretaries of the Section, Mr. M. W. B. Oliver, and a vote of condolence to his family was passed by members rising in their places. He died of rapidly developing double pneumonia.

Reattachment of the Retina After Spontaneous Detachment and Operation.

Mr. A. F. MacCallan showed this case. The patient had had no injury. A recent detachment was seen in the upper and outer part of the fundus of the left eye, and this corresponded with the defect in the visual field. A puncture was made, the trephine being passed into the globe and moved thru a segment of a circle, the scleral wound being opened as little as possible, the object being to effect a vent thru the retina. No fluid came externally from the puncture. She was kept in bed three weeks, and at the end of that time the vision was normal. The

present vision, with correction, was 6/12.

Mr. M. H. Whiting spoke of three cases of the kind he had recently, in which the results were successful. The technic he used was that originated by an Italian surgeon. In this operation the subretinal fluid was allowed to escape from the scleral puncture. The puncture was first made into the subretinal space, and after fluid had ceased to escape, the puncture was continued into the retina and vitreous. This was immediately followed by an injection of mercury oxycyanide, and later, by injection of hypertonic saline. The successes he had had from this method were more marked than he had experienced before.

The President said that, whatever else might be done, he regarded puncture of the retina as an essential. He liked to trephine the sclera with the ordinary 2 mm. trephine, and when he had let out subretinal fluid, he passed a Graefe knife thru the trephine hole, sweeping it radially thru the retina. This rendered wounding of retinal vessels unlikely. One could look thru the pupil to see what the knife was doing, and if there should happen to be hemorrhage, it cleared up well.

Ptosis.

Mr. MacCallan also showed a patient with ptosis on whom he had performed the operation of George Young of Colchester. This procedure pleased him and he recommended it to the members. He did not see why it should not be done on the adult, under novocain. The object of the operation was to bring about adhesion between the upper border of the tarsus and the belly of the superior rectus muscle. If, however, this muscle was not in an active condition, this operation was contraindicated.

Mr. George Young described his operation, which he designed in 1924 to relieve the disfigurement and suffering of a patient of his. Since then he had used the procedure for double ptosis, and for paralytic ptosis. He had found it very successful in all his cases, tho sometimes there was a slight sagging of the outer part of the eyelid. In paralytic cases there was diplopia, but it could be corrected with prisms.

Mr. Rayner Batten showed a patient with a new vessel formation in front of the iris. There was a long history of ocular defect from the 9th year, she now being about 30 years old. For some years she was blind, then she recovered some sight. Later she could not see thru her glasses and he discovered a bleb going over to the temporal side, and that this was a dislocation of the lens downwards and to the nasal side, deep in the vitreous. Last year she came with what appeared to be conjunctivitis and the sight began to fail again and she had some hypertension in the eye. Last September these vessels shown began to cross the iris; they emerged from the pupil, not from the margin of the iris. There had been extensive choroidoretinitis.

Mr. Harrison Butler said he had seen vessels coming out of the pupil in cases of iridocyclitis which had persisted a long time. He thought that in this case there must be a serious lesion of the ciliary body.

Mr. G. Young said that occasionally one saw marked vessels running over the iris in acute iritis.

Ocular Torticollis.

Mr. P. G. Doyne said this was not a very uncommon condition in children but it was only occasionally that the deformity was sufficiently marked to be conspicuous. In nearly every case it was of congenital origin. It must be distinguished from true torticollis. In ocular torticollis the head was tilted to one side; but there was little or no rotation of the chin to the opposite side, indeed the chin might point to the same side. There was no difficulty in straightening the head, and when this was done there was no obvious tightening of the sternomastoid. In a case recorded by Cockayne, and in all the author's cases there was facial asymmetry. Diplopia was not complained of when the head was in the assumed position, but was said to appear when the head was straightened. In Cockayne's case there was binocular vision.

Ocular torticollis seemed to be a posture adopted to compensate for weakness of one of the muscles which controlled eye movements in the vertical plane. The head was tilted to the side of the most dependent eye. Abelsdorff contended that the name ocular torticollis should be reserved for the cases which were due to paralysis of the superior oblique, as he maintained that the superior oblique and superior rectus acted in conjunction in performing the inward eye rolling movement, but were in opposition in regard to movements in the vertical plane. When the superior oblique was out of action, inward rolling of the eye was performed by the superior rectus, but the associated elevation of the eye by the superior rectus was now not opposed by the superior oblique, hence the eye squinted upwards. If the head was tilted away from the side of the paralysed superior oblique, the latter was not called upon. Abelsdorff said that the torticollis always corresponded to the side of the healthy eye. Mr. Doyne agreed with this but said ocular torticollis could certainly be caused by weakness of muscles other than the superior oblique. He had a boy, aged 9, under care who tilted his head slightly to the right. He had 3 D. of hypermetropia and 3 D. of astigmatism, the axis of which was slightly down and to the right in both eyes. Correction did not appear to alter the tilt, but he had a right internal strabismus with slight amblyopia in the right eye. There appeared to be no limitation of movement in either eye, nor was heterophoria demonstrable with the Maddox rod.

Mr. Doyne's own cases of the condition numbered five, tho in only two was the condition gross. The particulars of these two were as follows: The first was that of a girl aged 7 years who was somewhat backward mentally. Her head tilting had been noticed since birth. It was a tilting to the right, with a slight inclination of the head to the right. On holding the head straight—an easy matter—the left eye was slightly elevated in comparison with the other. On turning the eyes to the right, this elevation of the left eye became more marked, but on turning the eyes to the left, they became parallel. Right hypophoria was brought out with the Maddox rod. The right side of the face was atrophied, and refraction showed 2 D. of hypermetropia. Correction for this was supplied, but with no difference in the head tilting. After a few months observation, therefore, Mr. Doyne tenotomised the left inferior oblique. After this there was a marked improvement in the position of the head, nothing beyond a slight tilt being observed.

In the second of the severe cases, that of a girl aged 6, the head was tilted to the left. Hemiatrophy—on the left—was present in the face. With the Maddox rod, right hypophoria was found and this was compensated by a prism, base down, before the right eye. She had 1.5 D. of hypermetropia in each eye. Prisms did not correct the condition in two months, therefore, he tenotomised the right inferior oblique. Seen several times subsequently there was no noticeable improvement in the tilt, tho the mother said she was better but was shy. He was now trying physical exercises in supplement. He discussed the mechanism probably operating in all the five cases.

Mr. L. Montague Hine regretted he had not succeeded in exhibiting a patient who had this condition. This child had had a wry neck since birth, and at three months of age was taken to a Children's Hospital, where massage of the neck was carried out for some time, without benefit. At 3 years of age an operation was offered for the wry neck but it was declined by the mother. In her 8th year, the patient was sent to the Miller Hospital, Greenwich, where she came under the care of Mr. Roth. That surgeon said she did not have wry neck, but her vision was defective and sent the patient to Mr. Hine. She was then wearing plus 4 spheres and she came in with her head tilted to the right. She had binocular vision and left convergent strabismus without glasses; with glasses the convergence disappeared. When

her head was held to the right, the left eye was in the middle of the palpebral fissure, and when the head was brought round straight, the left eye turned up somewhat under the lid. He found she had, approximately, 4 prism diopters of left hyperphoria; therefore he added 2 prisms to each eye—base down in the left, base up in the right. He then sent the patient back to Mr. Roth as she was very much better. Six months later he saw the patient again and her mother was very pleased with the result. Eighteen months after he first saw her, Mr. Roth reported that the result was excellent and it was difficult to demonstrate the inequality.

MR. FOSTER MOORE asked whether Mr. Doyne had any theory to advance to account for the hemiatrophy of the face seen in many of these cases. The teaching had been that it was due to pressure of the sternomastoid and deep cervical fascia on the carotid artery, but the speaker did not regard that as a very satisfying theory.

MR. DOYNE replied that he tried prisms before resorting to the knife but failed with them in these two cases. With regard to causation, he took it that if this posture was adopted from birth, it was reasonable to expect a better blood supply on the non-tilted side than on the other.

Plastic Operation on Cornea.

MR. LINDSAY REA read a paper, profusely illustrated by means of the epidiascope, on two cases of plastic repair of perforated cornea. In the first of these, pus was pouring from the lids. He painted the lids with silver nitrate after swabbing and washing out, and on the same evening he drew the conjunctiva right across the cornea, refraining from putting bandages on the child's eye. After great patience by the nurse, who carefully washed away any secretion seen in the orbit, the conjunctiva became adherent and the secretion clear. It was now, three years after, very healthy. There was a large leucoma in the center. Astigmatism was very marked and the sight poor. The other case was also described and illustrated. He said he had carried out the same procedure for septic ulcer.

MR. HARRISON BUTLER referred to Kuhnt's operation of keratoplasty, using a ribbon of conjunctiva instead of an apron as employed by Mr. Rea.

MR. RAYNER BATTEN pointed out the advantages, in cases such as these, of the operation of peritomy.

H. DICKINSON, Reporter.

GRADUATE COURSES IN OPHTHALMOLOGY.

When calling attention to the combined graduate course, to be given in Vienna, October 1 to December 4, 1926, in the April number of this Journal, we wrote: "We will be surprised if among the readers of this Journal there are not enough who apply for this course to completely fill this class." Several days ago we learned by mail that more than half the number who could take it had already been registered. As we go to press this cable message is received:

"Course complete."

Lindner."

This will be unwelcome news to several who hoped to take the Course, but did not hasten to register for it.

The Course to be given in Denver in July seems destined to make a similar record. Last year the number that applied for the similar course reached the limit that has been set for the demonstration classes. This year we are informed that the registration for the course is fully three weeks in advance of what it was at the corresponding time last year.

The interest in graduate study that has appeared in the last five years is developing rapidly.

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BIOCHEMISTRY IN OPHTHALMOLOGY.

In this day we are studying previously invisible living structure by means of slitlamp microscopy. We learn of the approach toward sarcoma in the isolation and cultivation of the ultramicroscopic pleomorphic filtrable organism of Rous chicken sarcoma. Radium and the X-ray, and special "ray" appliances are becoming more clearly understood as to their biochemic effects. We are recognizing clinically and chemically the elusive facts about allergic phenomena in asthma, hay-fever, cataract, infections, gastric ulcer, and in certain food derangements. We see already demonstrated by Carrel the preservation of the chemically nourished living but separate parts of the body. It would seem that we are but entering upon the wonder age of medicine—that of biochemistry. What part will ophthalmology play in this rapidly developing field of scientific research?

When one considers these things, it should be recognized that the eye is particularly adapted for this study, not only because of its highly specialized structure but because of its completeness as a separate but intimately related biochemic body in itself. In this connection many researches (Rous, Fischel and others) have shown the mutual influence of adjoining tissues upon each other, as being undoubtedly an important factor in embryonic development. This chemic action of one tissue upon the other is shown, for example, by transplantation of the eye of larvae of amphibia under the skin; when subsequent cellular changes, or development in the epithelium of the skin, demonstrate that the chemic substances passing from the interior of the eye are indispensable, not only for its development as a transparent epithelium, but also for the permanent maintenance of this property (corneal transparency).

The eyeball is made up of all the primary tissues of the human body except bone, and under certain conditions calcareous material and even bony structure are developed within the globe. It possesses a connective tissue coat, a vascular tunic, voluntary and involuntary muscle, lymph spaces and modified lymph structures, amazing pigment deposits and linings, an evermoving pigmented sphincter curtain of vascular stroma and muscle fibers, a nervous mechanism incompar-

ably delicate and complex, the whole protected by mucous membrane anteriorly.

Within the orbit its motility simulates that of a ball and socket joint, while its interior is fairly charged with activity, principally iridic, ciliary and lenticular; its vascular system is so remarkably constructed for purposes of nourishment, sensitive compensatory changes, maintenance of temperature, absorption, filtration and drainage; its filtration and drainage systems are so intricate, and yet so universally complete and sufficient in their operation, that in many instances, when interrupted, the cause and effect has been the subject of study and uncertainty even to the present time. Not only because of these facts, well known to the ophthalmologist, and also because minute ocular changes are so sensitively recognized by the patient and often can be detected early by the oculist, but especially because the greater portion of the eye is composed of modified lymph substance, it seems to offer itself as a veritable culture tube for biochemical research.

One of the distinctive properties of living matter is known to be its universal disintegration and waste by oxidation, and its concomitant reintegration by the intussusception of new matter. If the processes of disintegration and of reconstruction, which characterize life, balance one another, the size of the mass of living matter remains stationary, while, if the reconstructive process is the more rapid, the living body grows. This is believed to be the explanation for the constancy in the size of the lens and vitreous—altho the peculiar "inherent" elastic property of the lens and its mysterious appearance in perfect form over-night thru a small trephine opening, (several authentic cases have been reported) seems to justify the often repeated reference to the "ameba like" lens.

The chemical influence of the contents of the eyeball manifests itself in a striking manner on the lens. It has been shown that in larvae of amphibia a lens may develop at any part of the skin, if the eye is transplanted under it, and the size of this lens will depend on the extent of the contact between skin and eye. Moreover, chemical substances furnished by the contents of the eye are known to be indispensable not only for the formation of the lens, but also for its maintenance. This has been proven by transplantation of the lens of a larva of a salamander into another tissue, when it gradually disappears by absorption, but if a piece of retina is transplanted with it, it is preserved. The great detail as well as the correlated data found in these discoveries, too voluminous to mention here, are to say the least illuminating.

Another contribution to the study of lens substance is found in authentic experiments which have produced hereditary blindness and malformations in rabbits by injecting fowl serum immunized against rabbit lens, by direct injection of lens substance, or by traumatizing the eye of the pregnant rabbit. These experiments embrace a large field of biochemical research, but that particularly related to the lens is of special interest, in that it may throw light upon the cause of congenital cataract and may lead to an explanation of individual hypersensitiveness to lens protein.

The recognition of endophthalmitis phacoanaphylactica as a clinical entity with a definite histologic picture, and the demonstration of a positive protein reaction to lens substance under conditions which make it of great practical importance, need only to be mentioned as being steps in the progress of biochemical research in ophthalmology. The absorption of cataract by the injection of lens protein has been approached with varying degrees of enthusiasm, but it must be regarded for the present at least as being in the experimental stage.

The behavior of uveal pigment in different individuals and under various pathologic influences, is suggestive of chemically active cellular organisms within the globe—with properties of stimulation, migration or chemotaxis, absorption (autolysis or heterolysis?), sensitization, proliferation, etc., which seems to point, who knows, to what

important biochemical and biokinetic reactions? Its behavior under conditions of inflammation, intraocular tension, toxic poisoning, bacterial invasion, melanosis, sarcoma, sympathetic ophthalmia, traumatism, etc., not to mention the large group of hereditary and congenital variations and malformations, gives evidence of a field almost wholly unexplored. Its role in the causation of sympathetic ophthalmia is being watched with keen interest.

The place which protein therapy should occupy in the treatment of ocular infections is a biochemical problem under investigation. While the evidence in favor of its definite curative properties is convincing, protein therapy seems to suffer most thru its popularity, since no doubt too much is claimed for it. Furthermore, authentic data are lacking to explain satisfactorily the complete mechanism of the protein reaction and the local effects now constantly observed. However, innumerable clinical and experimental reports of results from the injection of antidiphtheritic serum, milk, typhoid vaccine, tuberculin, etc., have stimulated the search for the most highly potent nonspecific protein (vegetable, animal, or bacterial), and the most effective method of injecting it. But biologic specificity depends on chemical individuality of proteins, and biologic relationship is equally associated with the presence of chemically similar proteins. Glowing results have been the attraction in this problem, rather than the biochemical proof in explanation of them. Obviously, the opportunity here seems great.

The unfolding of biochemical truths in medicine, as they may relate to the eye and perhaps may even be added to. thru the study of them in the eye, is a fascinating idea in process of achievement, which most of us anticipate and trust we may live to realize.

BEN WITT KEY.

AN OPHTHALMIC COUNCIL.

There are many things which concern ophthalmic practice and many social applications of ophthalmic knowledge, that are important to all people who live under the conditions of civilization. It is desirable that the part of the medical profession that knows of these things, and is engaged in the practice of ophthalmology, should be able to formulate its knowledge for public service and command the attention thereto of the general medical profession and the community.

A body representative of ophthalmologists, that can carefully consider the matters of especial interest to all engaged in ophthalmic practice and can speak for them in public affairs, is to be desired. Such a body might well be one to which the general public could look for guidance in all matters concerning visual requirements, standards and conditions of ocular health. It could be made extremely useful in bringing unity of sentiment and giving definite form to conclusions by ophthalmologists in general regarding such matters. This has already been demonstrated by our British confreres.

In Great Britain, after failure to induce the government to appoint a board of experts to advise with reference to visual examinations and visual hygiene, the Ophthalmological Society of the United Kingdom and the Section on Ophthalmology of the Royal Society of Medicine established, in 1920, the Council of British Ophthalmologists; composed of the past and present presidents of these organizations, four members chosen annually from each of them, and the master and two representatives of the Oxford Ophthalmological Congress.

This body, acting in an advisory capacity, has made important recommendations; as to the teaching of ophthalmology to medical students, the establishment of special examinations for those intending to take up ophthalmic practice; with regard to visual standards for drivers of vehicles and others; notations of the axes of cylinders, sight testing by opticians, admin-

istration of optical benefits, the management of contagious eye diseases, and other matters. The Council meets quarterly, controls its own organization and appoints committees to investigate special subjects, including experts in other branches of science. While its recommendations have not always received the attention they deserved, there can be no question that these recommendations and their publication have had an influence for good in some important matters.

There is room and need for some such body representing officially the ophthalmic organizations of America. At the recent meeting of the American Medical Association, a half-dozen questions came before the Section on Ophthalmology that could profitably receive the attention of such a Council. North America has a greater population, more oculists, a larger number of state, provincial and local governments to be advised, more problems to be solved, involving visual standards and visual conditions, than has the United Kingdom of Great Britain and Ireland.

There are three separate organizations representing ophthalmologists; the American Ophthalmological Society, the Section on Ophthalmology of the American Medical Association and the American Academy of Ophthalmology and Oto-Laryngology, that include in their membership and influence the more active and progressive ophthalmologists of North America. By joint action they have achieved very creditable results, thru the American Board for Ophthalmic Examinations and in the Washington International Congress of Ophthalmology. It would seem easy and proper, thru these existing and already cooperating bodies to create, on lines similar to those of the British Council, a body that can speak with intelligence and authority on a class of problems, in solving which the general medical profession and the public could be greatly assisted by such advisors.

E. J.

WHY THE DOCTOR SHOULD WRITE.

The average practitioner is usually satisfied to take the path of least resistance. He studies his cases, and reads what someone else has to say with regard to interesting or rare diseases, their course and complications, or summarizing the effects of treatment. He may also be willing to attend an occasional medical meeting, where he may brush up, to keep abreast with modern medicine. This holds good in ophthalmology. There is too small a percentage of producers in our profession. Many have the idea that some special talent is required. In this respect they should be disillusioned. What it does mean, however, is more work, and thus in turn, more knowledge.

Nor is it necessary that something new be presented. No one can practice ophthalmology for any length of time without encountering an occasional case which presents a different view, either in its anatomic, physiologic, pathologic or clinical aspect. The advantage to the reader is in being able to more easily estimate the significance of such a condition from a larger number of reports, than from a limited experience. Furthermore to write a report of a case might call attention to important details, which would otherwise have escaped observation.

To the younger man who presents such a report the benefit is much the greater and more far reaching. It means that he must thoroly acquaint himself with the literature before publication, in order to make sure that the phase which he is presenting is not only unusual to himself, but to the profession as well. This cannot help but build up the knowledge of his specialty. Even if the case, or summary of cases, or supposed new idea has previously been set forth, it is not at all unusual, in searching the literature on a given subject, to acquire bits of knowledge hitherto unknown to us, on the same or even some quite different topic. While we do not mean to insinuate that only those who write are capable, we unhesitatingly state

that everyone who does write understandingly, must be better qualified than if he had not written.

The technic of writing can be readily acquired, and practice is bound to influence its improvement. Numerous books have been published on the art of medical writing. Probably the best one for practical purposes is that recently put forth by Drs. Morris Fishbein and George H. Simmons. It should have its place in the library of everyone who writes, or has literary ambitions. M. W.

LEE MASTEN FRANCIS.

There are men who see the questions of specialization and service from the broader viewpoint of professional and public interest. Such men naturally become prominent and exert an important influence on the life and actions of their contemporaries. Such a man was Lee Masten Francis. At the age of 48 he attained such prominence and influence in ophthalmology.

He had become influential in national organizations, had an important part in the ophthalmic service of the American overseas forces in the world war, was President of the American Academy of Ophthalmology and Oto-Laryngology in 1920, and was Chairman of the Examination Committee of the American Board for Ophthalmic Examinations at the time he was stricken, at the Dallas meeting of the Section on Ophthalmology of the American Medical Association. For such a loss there is but one remedy. Close up the ranks! E. J.

BOOK NOTICES.

The Art and Practice of Medical Writing. George H. Simmons, M.D., and Morris Fishbein, M.D., Editors of the Journal of the American Medical Association. Cloth, 12mo., 163 pages, 23 illustrations. Chicago, American Medical Association Press. 1925.

Each year the number of ophthalmic contributions to the literature is greatly increased. This is largely due to the ever increasing activity of medical societies and is very desirable. There is nothing more stimulating to thought than committing oneself to writing. Ideas are clarified and loose thinking checked. The author must familiarize himself with the literature and thru his writing other members of the profession are informed.

Most physicians have done little composition and are unable to present their ideas in clear and forceful manner. As writing is a very secondary matter in their lives, they do not wish to make a lengthy study of style and expression, but would be willing to consult a condensed book of advice on these subjects.

Such a book is that of Drs. George H. Simmons and Morris Fishbein on The Art and Practice of Medical Writing. I most heartily recommend it to every ophthalmologist, whether he is author of original articles, an abstractor, an editor of society proceedings or the occasional contributor to the discussion of the paper of another.

The book is so full of good suggestions that it is hard to select any part for special notice, but certain points are of such cardinal importance that they may profitably be referred to here.

The necessity of repeated revision and condensation is dwelt on at considerable length but could not be overstressed as this is the cure for the loose, redundant, woolly style that is so common but so ineffectual and tiresome. Not one writing nor two nor three have been thought sufficient by the most experienced writers. How, therefore, may one who does not pretend to be expert hope to produce a satisfactory paper or report with less revision than this. The elimination of unnecessary words or phrases and even sentences aids the reader and strengthens the articles.

Chapter 12 on the Preparation of the Manuscript is splendid; concise, but sufficiently comprehensive. It should be read and reread. The authors stress the desirability of standard sized paper, 8 or 8½ by 11 inches and double spacing.

Too many ophthalmologists "re-

fract" the patient and not satisfied with this they "operate" him.

The matter of charts and photographs is most pertinent, especially the caution against waste space on charts and writing on charts in characters which will be illegible when the illustration is reduced to a size suitable for printing.

A most valuable method of obtaining the literature past and present on any subject is given "—begin with the last available volume of the *Index Catalogue of the Library of the Surgeon General's Office*—then consult the individual volumes of the *Index Medicus* up to recent date, the index of the bound volumes of *The Journal of the American Medical Association* up to 1916, and then complete his references with the *Quarterly Cumulative Index*."

The matter of spelling has been handled perhaps a little arbitrarily but spelling is always changing and for each publication uniformity is necessary even tho it is impossible to satisfy every reader.

The authors quote Sir Clifford Allbutt's Notes on the Composition of Scientific Papers. This is a book which may profitably be read in conjunction with the The Art and Practice of Medical Writing as they are complementary. Sir Clifford's book does not give as much detailed advice as the other but is especially valuable on the broad aspect of writing in general.

In conclusion, every writer of medical subjects should own a copy of Drs. Simmons and Fishbein's book; and should consult it each time he writes a scientific paper. L. T. P.

American Academy of Ophthalmology and Oto-Laryngology. Transactions of the thirtieth annual meeting held at Chicago, October, 1925. Clarence Loeb, Editor. Cloth 8vo., 566 pages, 77 illustrations, 1 insert chart. Chicago; Printed for the Academy by Tucker-Kenworthy Company.

Containing the papers and addresses given at the annual meeting of the Academy, these transactions contribute to the literature of both ophthalmology and oto-laryngology. The proceedings are carried on in general sessions and in two sections, one devoted to ophthalmology and the other to oto-laryngology. In the volume the papers presented at the meeting are arranged according to the sessions before which they have been presented.

This makes it necessary to search the three tables of contents, or the index of subjects to find the particular subjects treated, or to ascertain how many of them belong to one of these specialties. To preserve equality of treatment the precedence of position is given first to one section then to the other; and a similar alternation in presidents and vice-presidents brings the same alternation in the subjects to which their addresses refer. All this rather hinders the use of successive volumes for purposes of reference; since no general system of arrangement by scientific matter runs thru the series, such as is attained in the Transactions of the Ophthalmological Society of the United Kingdom, reviewed last month.

In the present volume the papers referring to ophthalmic subjects occupy 174 pages and those to oto-laryngology, 226 pages; while 150 pages are given to lists, minutes, tables of contents and indexes. The indexes include one for this volume giving both names of authors and subjects and cumulative indexes of subjects and of authors for the five annual volumes of transactions, 1921 to 1925 inclusive. This five year index greatly facilitates the finding of any paper or discussion that may have come before a meeting during that period. The geographic list of members also furnishes valuable help in suggesting to whom a patient may be referred who changes his residence or travels to another part of the country.

This volume in contents and appearance well sustains the character of the series to which it belongs and testifies to the activity, scientific standards and serious earnestness of the organization that puts it forth. E. J

Section on Ophthalmology of the American Medical Association; Presession volume for the meeting of 1926. Paper, 12mo., 378 pages, 57 illustrations, 2 col. plates. Chicago, A. M. A. Press.

This volume printed to facilitate the discussions of the Section is one of the very best of the series that has been put out since the series was started at the Boston meeting in 1906. When to the papers here printed are added the discussions they elicited at the Dallas meeting, the volume of the Transactions of the Section to appear later in the year will certainly be one that should find a place in every ophthalmic library.

It does not seem to be clearly understood that this volume is distributed free to all members of the A. M. A. who have attended an annual meeting, *and registered in this Section,* in the last five years. E. J.

Augendiagnosis and Okkultismus. Prof. Dr. Fritz Salzer. Paper 8 vo. 98 pages, 3 plates and 10 illustrations. Munich: Ernest Reinhardt.

This small volume is its author's answer to the question printed on its cover: What is "Eye Diagnosis?" Does it help to understand diseases? Has it a scientific foundation? Augendiagnosis and astrology, are eye diagnosticians clairvoyants? The association of "augendiagnosis" with occultism and astrology is appropriate and suggestive. It appears to be an expansion of the variety of quackery which has some vogue in Germany and adjoining countries under the name of "Iris diagnosis."

It is arranged in eight chapters under headings, which may be translated thus: Introduction; The attitude of scientific physicians on the diagnosis of disease from the eyes; Eye diagnosis or iris interpretation without science and with science; Does science give support to iris interpretation? Tests on patients; Iris interpretation as recent astrologic medicine; A "fireside talk;" "At least probable;" Iris interpretation and occultism; Are augendiagnostikers clairvoyants?

The illustrations consist of elaborate diagrams, ascribing significance to different parts of the iris, reproductions of cuts used to illustrate the speculations of ancient writers on medicine, and plates of the anatomy of the eye, especially of the ciliary region and iris, and one of renal retinitis reproduced in black and white from Oeller's Atlas.

This book has its place among the historic documents illustrating the history of quackery. It illustrates that in some measure every successful quack has some belief in the value of what he practices. E. J.

CORRESPONDENCE.

LEFTHANDEDNESS.

To the Editor:

I have just seen the letter of Henry O. Reik in the April JOURNAL, in which letter the position is taken that my book "Lefthandedness" merely repeats the arguments advanced by Dr. George M. Gould in his various writings on the subject of ocular dominance.

In my opinion the significance of my work consists in the following original contributions to the subject:

First: A demonstration that what I call "lateral sighting" is an optical *necessity*, and that dominance arises out of this necessity, rather than out of mere differences in acuity. I base all this on a demonstrated radical defect in the vary nature of binocularity, so far as "sighting" is concerned. In thus showing the *necessity* for lateral sighting, I prove the necessity for dominance. Acuity is entirely a secondary matter. Lateral sighting may be said to exist in spite of it. All these ideas, to say nothing of the demonstration of them, are new, so far as I am aware.

Second: I give (and partially substantiate) a new theory of binocular vision, suggesting its probable history and development, and dividing its phenomena into two categories, namely, the "fluctuating" and "fixed" types of "lateral sighting." These two types of binocular vision, never before differentiated, much less demonstrated, apparently explain various hitherto baffling

visual phenomena in both the brute and human species.

Third: As a corollary of these ideas relating to vision, I deduced ("stumbled upon" would be a better expression) a rational explanation of mirror-writing, conceivably one of the most interesting, if not most important, ideas in the book.

Fourth: Coordinating these various ocular phenomena with those relating to handedness, I invented the first simple apparatus for disclosing the eye condition and, by means of hundreds of tests, verified (in my opinion at least) my contention that unilateral sighting, the necessary adjunct of binocular vision, is the direct cause of handedness.

Fifth: On the basis of these ideas I demonstrated that ambidexterity is dependent on the "fluctuating" type of vision, thus giving it entirely new biologic meaning and causing it to assume evolutionary significance.

Sixth: I took the entire problem of handedness out of the realm of psychology and solved it by the application of purely physiologic principles. This, for many reasons, seemed a thing well worth doing.

Seventh: I revised all previous ideas as to the prevalence of native lefteyedness (and consequently of native lefthandedness), showing, theoretically and experimentally, that it apparently occurs in the ratio of approximately 1 to 3.

Dr. Gould, despite his many-sided genius, seems to have missed the most important point,—the keystone of the entire structure,—namely, the fact that dominance depends on a cause more fundamental than mere visual acuity. His theory, as I understand it, was that we are right or lefthanded because the eyes furnish us with images of unequal clearness. My idea is that we develop handedness simply because we have two eyes (instead of one centered medially), and for no other reason. In other words, my conception is that lateral sighting is a basic physical necessity due to the peculiarities of our bodily *structure;* Gould's, that dominance is an adjustment due to imperfect *function.* The distinction, it seems to me, could not well be more radical from the standpoint of ophthalmology.

Somewhere in his writings the late Percival Lowell speaks of "the unpardonable impropriety of a new idea." When the ideas are not one, but several, the impropriety increases in geometric, rather than arithmetic, progression. The antidote is that other saying of Lessing's: "The pursuit of truth is better than perfect understanding." The case for ocular dominance is not yet won. Much still remains to be done. I am of opinion that Dr. Gould's work, and my work, and the splendid work of men like Dr. Lloyd Mills will yet win it.

Yours very truly,

B. S. PARSON.

East Falls Church, Va.

BIOGRAPHIC NOTICES.

MARCUS FEINGOLD.

July 17, 1871-Dec. 26, 1925.

(At the regular monthly meeting of the Executive Faculty of the School of Medicine of Tulane University, held Tuesday, February 9, 1926, the following tribute and resolution, presented by Professor Matas, President of the American College of Surgeons, were unanimously adopted):

On Saturday, December 26, 1925, all that was mortal of Dr. Marcus Feingold, Professor of Ophthalmology in the Medical School of Tulane University, passed into eternity. The end came after a prolonged and painful illness, borne with heroic fortitude; the calm serenity and the philosophic resignation that became a man who had lived a life of service and unswerving rectitude,—a true knight of the profession, "without fear and without reproach."

In the death of Professor Feingold, the School of Medicine mourns the loss of one of its most distinguished teachers and an honored and beloved associate.

With the reorganization of the Faculty in 1907, the teaching of Ophthalmology was for the first time assigned to a special department and, on August 12th of that year, Dr. Feingold was elected as the head and first full professor of that department, continuing to serve in this capacity until his death.

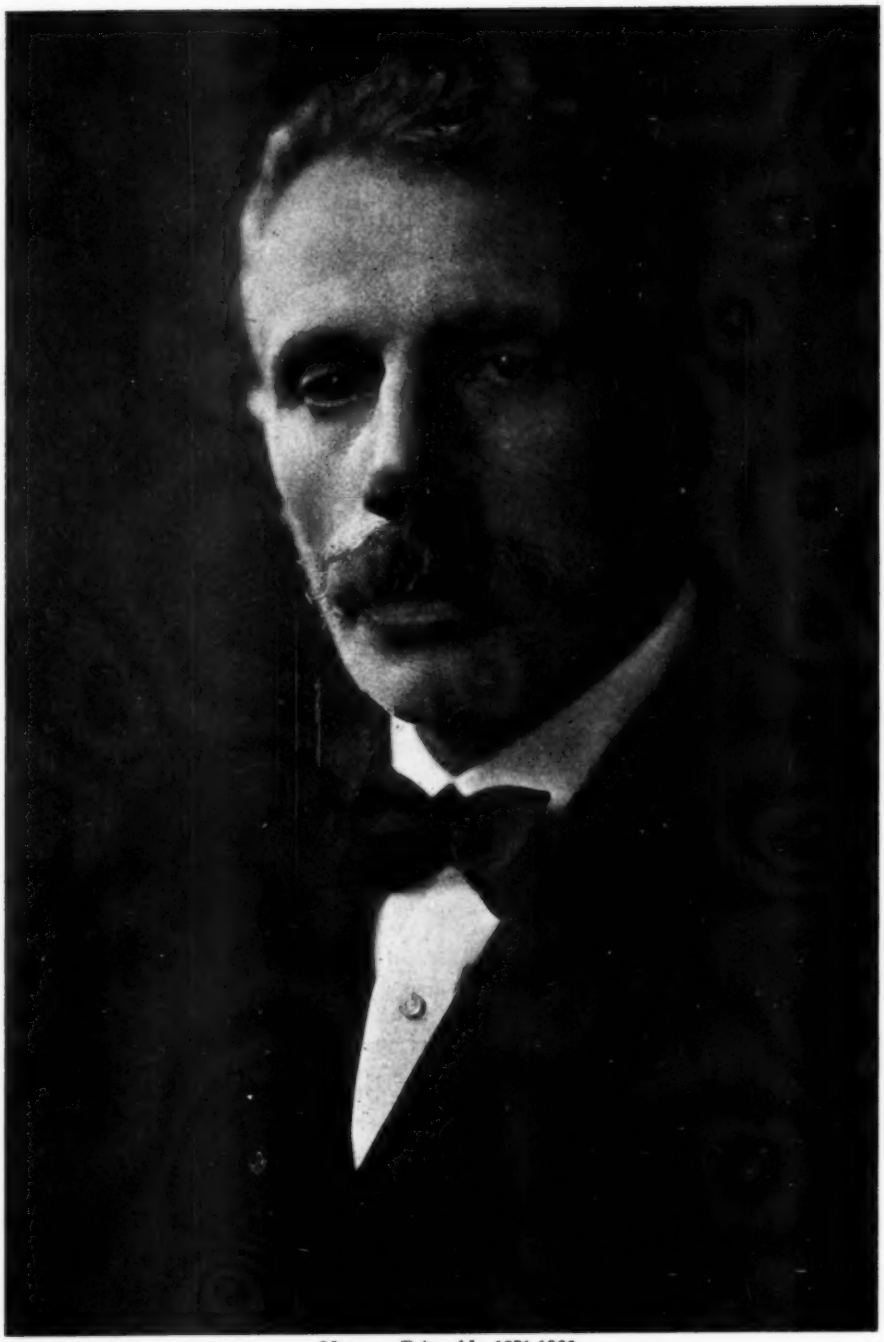
During the nineteen years that he occupied the chair of Ophthalmology, he gave distinction and luster to his department, by the efficiency of his teaching, his learning, his unsurpassed skill and the reputation which had given him a preeminent position in the esteem of the profession and the community, as a master in the specialty to which he had consecrated the better part of his life.

As a member of this Executive Faculty, his keen, deep, and untiring interest in all matters that concerned the welfare of the medical school and the university, his broad and sympathetic appreciation of the needs of the student body, his sound judgment, progressive spirit and clear mind in all the affairs of the administration, coupled with his unobtrusive yet firm convictions and his unfailing consideration of his colleagues, made him an invaluable counsellor and a most dependable comrade in all our deliberations and enterprises.

His interest in and devotion to the school and to the subject of his teaching, which in life had added so conspicuously to the reputation of the Faculty and of the University, was exhibited after death by the generous provisions of his will, in which he bequeathed his costly and splendid ophthalmologic library to the medical school. This library, consisting of nearly two thousand volumes and periodicals, represents a wonderfully complete and well classified repository of ophthalmic literature. It embraces all the important texts, journals and transactions of ophthalmologic and related societies which are published in this and foreign countries; and is the fruit of years of careful and discriminating selection by a master mind, familiar with every phase of the literature of this branch of medicine.

The list of the periodicals and transactions alone embraces over forty titles of ophthalmologic journals published at home and abroad. These journals are bound in complete files from the beginning of each publication to the time of his death (Dec. 26, 1925). In this collection, the periodical literature, by far the most valuable for study and research purposes, is unique and of incalculable worth, as it practically covers all the important world work on ophthalmology and is especially complete in its German and French contributions. Many of these files of journals and transactions are now unpurchasable and could not be replaced.

The library is typical of the scholarship and of the passionate love of his profession so characteristic of the donor. Dr. Feingold was a true bibliophile in the literary culture of his specialty. In building up this wonderful collection of ophthalmologic treasures, which he had gathered for years from



Marcus Feingold 1871-1925

all the book markets of the world, he has unintentionally erected for himself a monument that perpetuates his memory as a benefactor to his profession and to this community, which in service to present and coming generations has no parallel in local medical history.

This Faculty, mindful of this great and rare legacy, will treasure his generous gift as one of its most highly prized possessions and will see that the foundation, so admirably planted by its loving and beloved Founder, shall be preserved and perpetuated in all its usefulness, as a special division and function of its college library. There, it shall be known as the FEINGOLD COLLECTION, where not only the teachers and students in ophthalmology will find knowledge and inspiration but also the guidance of the abiding spirit of the donor.

Deeply and gratefully we prize this inheritance,—an inheritance that will remind present and future generations of the intellectuality and erudition of its Founder,—but still more than this posthumous tribute of his love and devotion to his profession, we prize the example which his splendid life leaves to his successors; an example of the highest character set before the student body, of a model, well directed, selfsacrificing, pure and altruistic medical life.

Dr. Feingold contributed with exceptional ability to the contentment and to the happiness of those associated with him, either in his duties or friendship,—students, teachers, associates,—and to the countless sufferers whom he cured, relieved or comforted by his skill, his learning, and his boundless charity. His was the power not only to command universal trust and confidence, but to win and to hold the good-will, respect and affection of those whom he served.

The members of this Faculty held him, while he lived, in genuine affection and in high regard for his admirable and stainless character, his intellectual endowment, his high purpose, his inflexible integrity. They honored him for his signal services to this School and this University, for his wide influence for good in all professional and communal interests and enterprises in which he engaged. For all this, and for all else that endeared him to us, his comrades, the memory of Marcus Feingold will remain ever green as our friend and as a faithful servant in the cause of human betterment.

To his bereaved wife, his beloved companion, who so devotedly shared in his life work, we extend our heartfelt sympathy in a sorrow and loss we have the privilege of sharing with her and with his family, hoping that his honored name and the love and respect in which Dr. Feingold was held may afford them some consolation in his loss.

RESOLVED: That this expression of our sentiments be permanently inscribed upon the minutes of the Faculty and that a copy be transmitted to Mrs. Feingold.

S. LEWIS ZIEGLER.

DR. PAUL J. SARTAIN.

Dr. S. Lewis Ziegler, a Fellow of this Section since 1899, succumbed to an attack of pneumonia on January 4, 1926.

Doctor Ziegler was born in Lewisburg, Pa., February 5, 1861; received his preliminary schooling there and then entered Bucknell University, from which he was graduated with the degree of A. B. in 1880.

He came to Philadelphia in 1882 and matriculated in the Medical School of the University of Pennsylvania, and was graduated in 1885, then served as interne at the Germantown and Episcopal Hospitals and finally at the Wills Hospital, in which he later became attending surgeon and subsequently Executive Medical officer.

In 1889 he organized the eye clinic at St. Joseph's Hospital, and remained a member of the staff up to the time of his death.

In recognition of his work, he subsequently received his M.A. from Bucknell, and had the honorary degrees of Sc.D. and L.L.D. conferred

on him by Bucknell and Lafayette respectively.

A close observer, of keen and analytical mind, he studied his cases with an untiring exactitude which generally brought him to conclusions logically correct and sometimes at variance with the usually accepted theories of etiology or pathology.

His treatment, always rational and often original for difficult and obscure cases, has, in many instances, become accepted as most efficacious.

His ingenuity in devising and supervising the making of new instruments in ophthalmic practice was of absorbing interest and genuine pleasure to him and some of his special operations have received well merited international recognition and adoption.

As an operator, skillful, decisive, quick, meeting the emergency as it arose, often anticipating a complication, his results averaged high, and in many cases referred to him after unsuccessful operations, his V-shaped iridotomy, which he so dextrously performed gave brilliant results.

S. LEWIS ZIEGLER, 1861-1926

Doctor Ziegler took the keenest interest in the new developments in the general field of medicine, and his activities outside his own specialty

were evidenced by his valuable work in the local chapter of the American Red Cross, and his successful administration as Director of the Bureau of Health and Charities of the City of Philadelphia.

For some years Doctor Ziegler had been writing and collecting material for a monumental work upon the surgery of the eye. He had spent much time in the great libraries of Europe consulting original authorities and having photographic copies made of the portraits of the most noted ophthalmic surgeons from the earliest times. These portraits, together with reproductions of an admirable set of drawings of operations made under his direction, would have been the illustrations for the text, still unfinished, which it was the ambition of his life to complete.

His appreciation of art, and love of the beautiful led him into the field of collecting during his visits to Europe, and made a pleasant diversion from his work—relaxation he had never learned.

The interests of the College he had always at heart, and was ever ready to serve it to the best of his ability. His genial personality, sterling honesty in his work and unswerving loyalty to his friends remain with us as a cherished memory.

(At the request of the Section on Ophthalmology of the College of Physicians of Philadelphia, the above memoir was prepared and read at the March meeting by Dr. Sartain. In 1904 Dr. Ziegler married Miss May Weston, who with a son and daughter survive. By Mrs. Ziegler's help the following list of Dr. Ziegler's writings is furnished):

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THOMAS RICKETT POOLEY.
1841-1926.

Dr. Thomas Rickett Pooley was born in Chatteris, Cambridgeshire, England, on October 1, 1841. His father was a physician who shortly emigrated to the United States and settled at Dobbs Ferry, New York, where he developed a large general practice. His son received his early education in the local public schools as was the custom of that day and purposing to study medicine entered Bellevue Hospital Medical College. He made some progress when his course was interrupted by the outbreak of the Civil war in which he served as medical cadet from September 5, 1862 to May 18, 1864. Most of this service was in the large military hospitals about New York and he must have been able to keep up his medical studies at the same time for he received his degree of M.D. in March, 1864. Shortly thereafter he was commissioned assistant surgeon of U. S. Volunteers and at the close of the war was discharged from the service as Brevet Captain. For some time afterward he was Sanitary Inspector of the then Metropolitan Board of Health, having charge of its Cholera Hospital during the epidemic of 1866. Desiring to specialize in medicine he spent a year in London and Paris and then became an assistant at the New York Eye and Ear Infirmary and 1869 was an assistant surgeon of the New York Ophthalmic and Aural Institute which preceded the Knapp Memorial Hospital. Here he remained some fifteen years. He was also Surgeon to what was then known as Charity Hospital, with its thousands of beds which is now City Hospital on Welfare Island.

In 1888 he organized the New Amsterdam Eye and Ear Hospital in West 38th Street and for some twenty-two years he was its Executive Surgeon. When, at the age of sixty-nine, he felt obliged to resign this position, the era of high hospital cost and consolidations was already under way, and shortly afterward the New Amsterdam closed its doors. During this period of his life he lectured on ophthalmology at the Starling Medical College and at the New York Polyclinic and was cor

sulting surgeon to other institutions. In Dr. Pooley's day the specialties in medicine had not become so sharply differentiated as now. Many of the leading ophthalmologists included with their work conditions of the ear, nose and throat as well. Some of them had begun to limit their work to the specialty then known as the "Eye and Ear." Dr. Pooley was one of these. He became a member of the New York Ophthalmological Society in 1869 and of the American Ophthalmological in the same year. He was also a member of the American Otological Society, as well as the American Medical Association and the New York Academy of Medicine.

Under his name in the library of the Academy can be found a long list of contributions to the literature of both ophthalmology and otology, chiefly clinical reports of a very wide range of cases; but he was also one of the group of men responsible for the very able predecessor of the Encyclopedia of Ophthalmology known by most of us as "Norris & Oliver." Dr. Pooley contributed the chapter on perimetry.

Perhaps the most interesting of his ophthalmologic contributions was the sideroscope. In that day accidents involving foreign bodies in the globe were much more common than now and there was no way of detecting their presence unless they could be seen with the ophthalmoscope. Dr. Pooley was the first to hit upon the idea of using a very delicate magnetic needle as a detector and made a large number of observations on the amount of deflection caused by foreign bodies of different sizes at different distances. The sideroscope, afterward further developed by Asmus and others, was capable of detecting the most minute of foreign magnetic bodies, tho its very delicacy would have rendered it well nigh useless in our day of steel construction and electric power lines. Soon afterward, however, discovery of the X-ray, which made possible not only detection but accurate localization of even the nonmagnetic foreign bodies, made the sideroscope merely an item of ophthalmologic history.

Dr. Pooley was a man who enjoyed the social contacts with his colleagues and his patients to the utmost. He had a keen sense of humor of the kindly sort, which he sometimes gratified even at the expense of his friends; and he was a very good after dinner speaker. He married in 1871 Miss Annie Wilbur who died in the same year, and on May 28th, 1885 he married Miss Emma Jane Riggs, who with their son, Dr. Thomas R. Pooley, Jr., an ophthalmologist of Newton, N. J., survives him. Dr. Pooley died on February 14th, 1926 at the home of his son in the 85th year of his age.

(This sketch, incorporated in the minutes of the New York Ophthalmological Society, was prepared by Dr. Alexander Duane and Dr. Ellice M. Alger.)

ABSTRACT DEPARTMENT

Reprints and journal articles to be abstracted should be sent to Dr. Lawrence T. Post, 520 Metropolitan Building, St. Louis, Mo. Only important papers will be used in this department, others of interest will be noticed in the Ophthalmic Year Book.

Conway, J. A. Cerebral Aneurysm Causing Ocular Symptoms. Brit. J. Ophth., 1926, February, V. 10, No. 2.

This contribution reports two very interesting case histories together with illustrations of the brain pathology, field charts and ten references. The author has tabulated the results of his search of 6,325 postmortem records made at the Pathological Department of the Glasgow Royal Infirmary. An interesting feature in the first case reported is the wide variations and character of the fields. The aneurysm occupied the sella. The fields showed temporal hemianopsia in one eye and horizontal hemianopsia below, in the other. Later both fields became almost obliterated then regained bitemporal form and just before death were restored to full size. Both cases gave a history of periodic head pains. The author's experience is that ocular symptoms in cases of cerebral aneurysm are not of common occurrence, unless following a cerebral hemorrhage. The second case showed an aneurysm of the left vertebral artery.

The author draws the following conclusions from his studies of cerebral aneurysm: 1. About 68 per cent of the total number died suddenly from an apoplectic seizure without any preceding symptoms of cerebral origin. 2. It was a condition that occurred frequently in youth and tended to end fatally in the same period of life. 3. All the pathologic causes of cerebral aneurysm having been considered, some of which are atheroma, specific arteritis, embolism, heart diseases, trauma, vasomotor and other causes, we were thrown back on the hypothesis that these dilatations of cerebral vessels were in many cases due to congenital weakness in the vessel walls. 4. This study shed no new light on the symptomatology or etiology of this condition, but it brought before us again its comparative frequency and the necessity for a closer examination of possible cases, with a view to gaining further information on an important pathologic condition.

D. F. H.

Williamson-Noble, F. A. Inflammatory Pseudotumor of the Orbit. Brit. J. Ophth., 1926, February, V. 10, No. 2.

This condition is discussed quite fully by the author who reports three case histories. Ten microphotographs and twelve references accompany the contribution. Microscopic examination showed one tumor to be gummatous, another lymphatic hyperplasia following infection and the third a proliferation of fixed connective tissue cells caused by irritating products of hemorrhage.

Preoperative diagnosis is most difficult. Negative Wassermann does not necessarily exclude gumma, but heroic antisyphilitic treatment may settle the diagnosis. Differential blood counts, blood coagulation time, urine and tuberculin tests and careful search for focal infections are all helpful aids. The history is of great importance. Exploratory operations are indicated before radical procedures are instituted.

D. F. H.

D'Amico. Subconjunctival Luxation of the Lens. Ann. di Ott. e Clin. Ocul., 1925, Vol. 53, p. 665.

The author reviews the literature of the subject including the cases with pathologic reports and describes in detail three personal cases with sections. His first patient was hit in the eye one month before by the tooth of a threshing fork. It was enucleated on account of a suspected beginning sympathetic ophthalmia. Sections showed a large rupture at the upper limbus which was still open, leaving the anterior chamber in communication with the subconjunctival pocket containing the lens. The upper third of the cornea was bent backwards while the iris was turned out to surround the lens. The iris and ciliary body showed rather marked inflammatory changes and the

retina was detached below. The second two cases were similar to the first, the injury being in the second case due to the blow of a fist and in the other to a cow horn injury. In both these cases, the lens was seen under the conjunctiva above but in them the wound had healed over completely so that there was no leakage of aqueous. In all three cases the wound was above. The conjunctiva was intact over the lens in all three and the lens showed cataractous changes of only part of the cortex, the nucleus and some parts of the cortex being quite clear. All showed a rather marked inflammatory reaction of the iris and ciliary body and in one this extended to the whole choroid. The author divides the changes found into those due to the injury itself, including the wound, hemorrhage into the vitreous, and a rupture of the zonula with the resulting loss of the lens, and secondary inflammatory changes. The detachment of the retina found in all cases was probably due to the injury itself which was severe enough to cause complete loss of vision without the resulting loss of the lens. This the author considers a relatively unimportant incident from the point of view of visual function. The rupture is due to a sudden increase of the intraocular tension by the blow, the rupture always occurring at the limbus where there is a change of structure between the sclera and the cornea. Since this increase of tension does not affect the conjunctiva which is very elastic, and therefore does not rupture, the lens which is pushed forward suddenly is released by a rupture of the zonula, and necessarily propelled out of the wound and under the conjunctiva. (Bibl. and 5 ill.)

S. R. G.

Cirincione. Visual Function in Detachment of the Retina. Ann. di Ott., e Clin. Ocul. 1925, vol. 53, p. 641.

On the basis of careful clinical observation and visual fields checked by histologic sections in several patients, the author considers the question of whether the retina can retain its function after being separated from the pigment epithelium. This is what occurs in socalled retinal detachment which should be called detachment of the proximal layer of the retina. In a typical complete detachment which has existed for considerable time, no vision can be present since the substance formed in the pigment epithelium which is necessary for vision is not available to the retina. In one case of typical detachment the author saw two areas in which the retina was raised slightly from the choroid without being completely detached. The visual fields showed a complete scotoma corresponding to these areas and zones of relative vision about it, in one of which red only was seen and in a zone farther out, green and blue. Sections of the eye after enucleation showed a fairly marked degeneration of the rods and cones in this area. The thread like processes which connect the rods and cones with the pigment epithelium were present in a few places but in most places these filaments were broken off and formed a sort of membrane just outside of the layer of rods and cones. A review of published cases bearing on the subject is given, most of which, however, record only the return of central vision without giving any definite findings as to the return of vision in the detached area. From his investigation, the author describes four stages in the process as seen by histologic sections with the vision corresponding to each. Often several of these stages may be found in the same eye in different areas. 1. That in which the rods and cones are only slightly separated from the pigment epithelium, a number of processes from the rods and cones still being connected with the pigment epithelium; many, however, being broken. No changes in the structure of the rods and cones are noticed. The vision in such an area may be as high as 1/10 and perception of color is present. 2. All the protoplasic connections between the rods and cones and the layer of pigment epithelium are broken and massed together in a sort of membrane. This layer seems to pull the rods and cones in one direction at their

external end. The vision in such an area is hand movements and blue is the only color which can be distinguished. 3. In this stage swelling and degeneration of the rods and cones themselves become evident. They are occupied by vacuoles or droplets of a refractile substance, probably of a lipoid nature. The cones show more degeneration than the rods and in them these refractile bodies may fuse to fill fairly large spaces. The vision is uncertain light perception. 4. In old cases of detachment, no trace is left of the rods and cones and here marked degenerative changes in ganglion cells and other cells of the retina are seen. The pigment epithelium in all these stages shows two types of change, an irregularity in the arrangement of the cells and a tendency to proliferation thru the subretinal space. The author believes that in the first and second stages before changes in the rods and cones have occurred, a return of useful vision is possible if reattachment can be obtained.

S. R. G.

Fileti. Corneal Cysts and their Pathogenesis. Ann. di Ottal. e Clin. Ocul., 1925, vol. 53, p. 696.

Only about twenty cases of corneal cysts have been reported in the literature and of these only eleven have included pathologic findings. Numerous hypotheses have been offered as to the origin of these cysts. The author's case, a woman of 59, had had an inflammation in the left eye for five years. For the past three years the vision had been reduced to light perception. When seen by the author, the cornea was opaque and ectatic, especially in the center. The lower quadrant was somewhat more transparent. The opacities extended thru the cornea and in the more transparent area grayish lines could be seen on the posterior surface of the cornea giving a double contoured optical effect. In the upper nasal quadrant there was a cyst about the size of a grain of wheat. On the side toward the limbus it was imbedded in the cornea. It was divided into two parts by the septum. There were also three smaller cysts in the substance of the cornea, the largest of which was 2x1 mm. in diameter. All the cysts had a perfectly clear content so that they resembled dew drops in the cornea. Vision was 1/60 and the tension was slightly increased. The right eye showed a similar ectasia of the cornea with opacities reducing the vision to 1/14 but none of the peculiar double contoured lines on the posterior surface and no cyst. The large cyst was removed as carefully as possible but during the operation, the cornea was perforated. Serial sections showed the cyst to be lined with endothelium. No connection could be made out between the cyst and the anterior chamber or the epithelial surface. Directly under the epithelium were corneal lamellae. The author believes the traumatic cysts which have been described as being lined with epithelium are in a different class and should not be called true cysts. The only true cysts of the cornea, he believes, are like the present one, lymphatic cysts. Altho no communication was demonstrated with the anterior chamber, he believes cysts are possibly due to changes in Descemet's membrane which allow the aqueous to filter between the corneal lamellae. An attempt to produce such cysts in animals experimentally was unsuccessful. (Bibl. and 2 illustrations.)

S. R. G.

Ciccolo. Trachoma in Rome. Ann. di Ott. e Clin. Ocul., 1925, vol. 63, p. 680.

The author's statistics are derived from records of the clinics and a large ophthalmic hospital between the years 1909 and 1922. Eight thousand nine hundred and sixty-seven cases of trachoma were treated during this time. There was an increase in the actual number of trachoma cases from 1909 to 1912, then a decrease until in 1918 only one-third as many cases were seen as in 1912. The figure has remained about the same since 1918. When this number is compared to all the other eye diseases seen at the same time, trachoma was already showing a relative decrease in 1910. This was followed by an increase in the years 1911, 1912, the years of the Libyan

war. This increase affected only cases between sixteen and fifty years of age, the military age. It affected women in the same proportion as it did men but this is accounted for by the fact that they were also subjected to war conditions, having to give up the possibility of treatment on account of the necessity of working. A similar slight increase in the relative incidence of trachoma was noted for both sexes between the ages of sixteen and fifty in 1919, after the great war. The decrease in trachoma from one thousand and thirty-one cases in 1912 to three hundred and thirty-two in 1922 is especially remarkable when compared to the increase in the urban population since the war. Of all eye cases seen in 1909 to 1922, 7.1 per cent were cases of trachoma. The author estimated that 6.63 per cent of the population of Rome in 1921 had trachoma, if all the cases seen between 1909 and 1921 were included. From the incidence of cases each year, about one new case occurred to each one thousand population. This figure of the incidence of trachoma in Rome is very low when compared to other Italian cities. In Sessari 60 per cent of all eye cases are trachoma; in Gagliari, 55 per cent. The season of highest incidence is May. The classes of people most affected are the poorer and lower middle but all occupations are equally affected. In these classes, the ages of sixteen to twenty-four are those mostly affected. (Bibliography.)

S. R. G.

Addario. Treatment of Trachoma with Relation to the Pathology Involved. Ann. di Ott. e Clin. Ocul., 1925, p. 650.

The author reviews the pathology of trachoma including some early work of his own on the subject and gives the therapeutic deductions which he has derived from his clinical and histologic study. After the follicles become soft and ulcerate, emptying themselves of their contents, a reparative reaction sets in with hypertrophy of the small vessels which afterwards become sclerotic and atrophic. This is a slow process going on in some places while new follicles are being formed in others. During this stage the pressure of the roughened lids may produce corneal ulcers, either on the healthy cornea or on the cornea already involved in pannus. Without any special pressure on the lids the cornea with pannus may develop infiltrates which break down to form ulcers. The socalled transparent ulcers of the cornea in trachoma are probably due purely to pressure from the lids. The most dangerous stage for the cornea is when the vessels become sclerotic in pannus. During the shrinkage of the conjunctiva and tarsus which follows this stage, entropion and trichiasis occur and the author emphasizes the fact that pressure from the concave lids in entropion can cause severe corneal irritation without any trichiasis being present. Acute trachoma, of which the author has seen numerous undoubted cases, either cures itself spontaneously or passes into the chronic stage. Transparent ulcer of the cornea is common in acute trachoma due to pressure from the thickened lids. In the follicular stage, treatment is directed to stopping further lymphoid hyperplasia. The follicles should be emptied by the roller forceps following which 2 per cent silver nitrate, copper solution, or applications of blue stone should be used. Two or three such expressions may be necessary. In the diffuse form of trachoma which occurs without the formation of definite follicles, 2 per cent silver nitrate should be used. If such treatment is carried out thoroly, the resulting scars are slight and trichiasis rarely occurs. In the diffuse form with follicle formation and large papillae, the author prefers the blue stone combined with curettage of the follicles. The important thing in these early stages is to avoid or minimize as much as possible, the cicatricial stage. If such treatment were carried out thoroly during this period, entropion would not occur and almost all cases of blindness from trachoma would be avoided. When the cicatricial stage is present, all the factors which combine to cause corneal irritation are to be considered and

eliminated. In this stage, scarification and expression are harmful as they cause increased scars. The best procedure at this time is excision of the retrotarsal fold with a small piece of the tarsus combined with canthoplasty when this is necessary. This should be done even when corneal ulcers are present. The only contraindication to it is when the conjunctiva has already become sclerotic. In this stage the trichiasis must be corrected or if entropion exists without trichiasis, it is just as important that the entropion be corrected by a suitable operation. Excision of the folds and tarsus according to the author's method is a very simple procedure and no sutures are necessary. After the operation a collyrium of copper sulphate should be used for some time. When corneal ulcers and infiltrates are present peritomy is often of great value. If a severe ulcer is present with hypopion, the ulcer should be touched with the actual cautery until the cornea is perforated. In the late sclerotic stages, peritomy is useless. In the stage of acute trachoma at the very first, the ice bag, weak cocain solution, and general measures are all that is necessary. Caustics should be avoided until the secretion starts. Then a ½ per cent silver nitrate solution two to three times a day should be used. This may soon be increased to 1 per cent twice a day and if the condition goes into the chronic stage, 2 per cent silver nitrate neutralized with salt solution is necessary. If follicles should develop, they should be expressed as described above. Excision of the folds or tarsus is contraindicated in the acute and subacute stage. S. R. G.

Zoldan. Purulent Tenonitis. Ann. di Ott. e Clin. Ocul., 1925, vol. 53, p. 702.

The author's patient, a boy of six, developed, within a week, marked chemosis of the bulbar conjunctiva in the right eye with extreme limitation of the movements of the globe. The cornea was normal; vision was reduced to 2/10; fundus examination showed only a moderate stasis of the retinal vessels. There were no general symptoms. One week later exophthalmos had increased to two centimeters, the eye was immovable, and vision was nil. A yellow spot could be seen near the insertion of the inferior rectus. When this was incised, 1 c. c. of pus escaped, from which a pure culture of staphylococcus aureus was grown. The opening was enlarged and more pus was removed after which the process promptly cleared up. One month later the exophthalmos had disappeared, the ocular movements were normal except for slight limitation of upward movement, vision was light perception and the nerve was very pale. An interesting phenomenon observed in this patient was the change in refraction during the course of the disease. First a myopia of two diopters developed, then disappeared to be followed by hyperopia of two diopters which in its turn disappeared, leaving a myopic astigmatism of 1.5 diopters against the rule. This is interpreted as due to change in corneal curvature resulting from the pressure of the inflammatory process, occurring first around the globe so that the eyeball was lengthened and then behind it as the process extended. No cause for the condition was found except a history of a period of somnolence two weeks before, which probably represented some acute infection. (Bibliography.) S. R. G.

Junès, Emile. Acute Unilateral Retrobulbar Optic Neuritis. Gaz. des Hôp., 1926, v. 99, pp. 197-202; 229-234.

By this term is meant an affection of that portion of the optic nerve between the chiasm and the entrance of the blood vessels into the nerve. The term juxtabulbar is applied to the remaining portion up to the eyeball.

The onset of an acute retrobulbar neuritis is usually sudden, while the patient is otherwise in good health. It is always unilateral, and starts with a sensation of pain ranging from a moderate discomfort to a degree which prevents sleep. It is referred either to the ball or the orbit, or may appear as a general headache. This pain is increased on pressing the eye backwards into the orbit, or by the movements of the eye by the patient. Pain is soon

followed by loss of visual acuity which may be initiated by photopsia, and which rapidly progresses to complete or nearly complete loss of vision. Dark adaptation is especially decreased. One of the most characteristic symptoms is a large central scotoma for both white and colors. There may be a loss of colors in the periphery, also, with retention of perception of white.

Objectively, the fundus is usually normal, as is the eyeball. The pupil may be somewhat dilated. The direct reaction of light is decreased, with retention of the consensual reaction. These symptoms of the disease may be modified and accentuated if other portions of the nerve are involved at the same time, producing atypical forms. The disease passes thru three stages —(1) an initial stage of some hours to a few days, ending when the visual disturbance has reached its maximum. (2) Status quo, the condition of the vision being stationary, lasting about two weeks. (3) A period of remission, lasting from one week to 8 months, when the acuity of vision gradually improves and the other symptoms disappear. The vision may return to normal or almost normal, or may be lost completely.

As nothing is known of the actual pathology of the disease, the theories concerning it are (1) a primary optic meningitis with subsequent diffuse neuritis; (2) an acute interstitial neuritis; (3) circulatory disturbances. The effect is produced by a compression of the nerve fibers or by the toxins from the intestines or from microbic activity. The papillomacular bundle is especially involved, either because they are the most highly differentiated fibers, or because the circulatory disturbances affect them especially or because the microbic toxins have a special affinity for them.

The treatment consists in removal of the cause, and symptomatic treatment. The eye should be put at rest, and be kept in the dark by smoked glasses or eye patch. Local depletion of blood, hot compresses, sweats, soft nontoxic diet, no alcohol or tobacco, antitoxic sera, retrobulbar injections of mercury cyanid, anterior sclerotomy may be valuable. Later, strychnin and electricity are indicated to stimulate the nerve fibers.

Under etiology may be mentioned syphilis, multiple sclerosis, posterior sinusitis, dental infections, scarlatina, rheumatism, grippe, measles, diphtheria, small pox, typhoid fever, erysipelas, pneumonia, etc.

The article concludes with an extensive bibliography. C. L.

Valude. Syphilitic Hemorrhagic Iritis. Acad. de Méd., 1926, Feb. 2, Abst. Gaz. des Hôp., 1926, v. 99, p. 235.

A case is reported where the lesser circle of the iris was very red, due to new formation of blood vessels, while the remainder of the iris was only slightly involved. C. L.

NEWS ITEMS

Personals and items of interest should be sent to Dr. Melville Black, 424 Metropolitan Building, Denver, Colorado. They should be sent in by the 25th of the month. The following gentlemen have consented to supply news from their respective sections: Dr. H. Alexander Brown, San Francisco; Dr. Wm. Thornwall Davis, Washington; Dr. Gaylord C. Hall, Louisville, Ky.; Dr. George F. Keiper, LaFayette, Indiana; Dr. J. W. Kimberlin, Kansas City, Mo.; Dr. George H. Kress, Los Angeles; Dr. Edward D. LeCompte, Salt Lake City; Dr. W. H. Lowell, Boston; Dr. G. Oram Ring, Philadelphia; Dr. Charles P. Small, Chicago; Dr. G. McD. VanPoole, Honolulu.

DEATHS.

Dr. Zoege von Manteuffel of Dorpat is dead.

Dr. F. Dimmer of Vienna died recently at the age of seventy-one years.

Dr. Cyrus S. Merrill, Albany, New York; aged seventy-eight, died March seventeenth.

Dr. Inglis Taylor, Consulting Surgeon to the Western Ophthalmic Hospital, London, died recently.

Dr. George Washington McDowell, New York; aged sitxy-five, died March sixteenth at New Rochelle, New York.

Dr. Lee Masten Francis of Buffalo, New York, died of angina pectoris while attending the meeting of the Section on Ophthalmology of the American Medical Association, Dallas, Texas, April 22d, 1926.

Dr. John B. Story, president of the Royal

College of Surgeons, Ireland, from 1918 to 1920, president of the Ophthalmological Society of the United Kingdom, professor of ophthalmic surgery to the Royal College of Surgeons in Ireland and president of the Irish Medical Association in 1913, is dead.

SOCIETIES.

Dr. Lafayette Page, Indianapolis, has been elected president of the Indiana Academy of Ophthalmology and Otolaryngology, Dr. Louis D. Brose, Evansville, vice president, and Dr. Daniel S. Adams, Indianapolis, secretary-treasurer.

Dr. J. W. Kimberlin was elected president of the Kansas City Eye, Ear, Nose and Throat Society at the April meeting; Dr. Alvin Lorie, first vice president; Dr. D. D. McHenry, Oklahoma City, second vice president; Dr. W. E. Keith, treasurer; Dr. A. E. Eubank, secretary.

The Ophthalmological Section of the American Medical Association recently held in Dallas, Texas, was from the standpoint of scientific interest and attendance, a marked success. The sudden death of Dr. Lee Masten Francis of Buffalo, on the second day of the meeting, was a very tragic and sad occurrence. Dr. Francis had occupied a conspicuous position in the Section, as well as on the examining ophthalmic board. He will be sadly missed.

The Section on Ophthalmology of the College of Physicians of Philadelphia met Thursday evening, April fifteenth. The following program was given: Dr. Frank C. Parker (by invitation) "The Todd Muscle-Tuck, with a Modification." Dr. Francis H. Adler, "The Action of Atropin in Acute Inflammations of the Eye." Dr. Burton Chance, "Concerning Two Cases of Intraocular Sarcoma." Dr. G. Oram Ring, "Orbital Swelling Associated with Chronic Frontal Sinusitis (previously diagnosed as Osteoma) with Sudden Extensive Edema of Upper Face and All Four Eyelids." Dr. H. Maxwell Langdon, "Lesson to be Learned from Dr. Mitchell's Paper on 'Eyestrain as a Cause of Headache,' published in April, 1876." Dr. Edward A. Shumway, Chairman, and Dr. Leighton F. Appleman, Clerk.

The regular meeting of the Ophthalmological and Oto-Laryngological Section of the Cleveland Academy of Medicine was held at Hotel Winton Friday evening, March twenty-sixth. Following an agreeable custom initiated by the Section a few years ago, members of the Akron Ophthalmological and Oto-Laryngological Society were invited to present the program of the evening. The speakers were Drs. F. H. Cook and C. M. Clarke. Dr. Cook took up the subject of "Color Vision" and Dr. Clarke reviewed the "Diagnosis and Treatment of Malignant Tumors of the Maxillary Sinus." Dr. Clarke's paper was illustrated with many excellent lantern slide views of interesting cases. Both of these highly instructive papers were freely discussed.

THE AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS.

At the examinations held at San Francisco, April 28 and 29, in connection with the meeting of the Pacific Coast Oto-Ophthalmological Society, fourteen candidates were present for examination.

The next examinations of the Board will be held at Denver, Monday, September 13, the day preceding the meeting of the American Academy of Ophthalmology and Oto-Laryngology at Colorado Springs. Those desiring to appear for examination at that time should apply to the Secretary of the Board, Dr. William H. Wilder, 122 South Michigan Boulevard, Chicago, Illinois. The required applications should be filed at least two months before the time for examination.

PERSONALS.

Capt. V. B. Numbkar has been appointed Honorary Surgeon to the Government Ophthalmic Hospital, Madras.

Dr. Edward Gauly of Cleveland, Ohio, was recently appointed Ophthalmologist to the Health Center Clinic of Euclid Village.

Dr. George E. deSchweinitz of Philadelphia is on the program for the coming meeting of the Ontario Medical Association.

Dr. J. H. Ralston has been appointed assistant consulting ophthalmologist to the Alexis Hospital and Dispensary, Cleveland, Ohio.

Under the auspices of the National Committee for the Prevention of Blindness and the New York Department of Education, Dr. Emily A. Pratt has, for three months, been lecturing in each of the normal schools of New York state on the most progressive methods for preserving the sight of children.

Dr. Casey Wood, after a year in Ceylon collecting material for a work on Comparative Vision in Birds, has moved to Kashmir for a continuation of this study. He will remain there for six months before returning, via Siam, China, Japan and the Philippine Islands, to America. Dr. Wood has recently been made Honorary Collaborator in the Division of Birds, Smithsonian Institution, for his contributions to ornithology.

MISCELLANEOUS.

The University of New York and Bellevue Medical College have received, thru Dr. John M. Wheeler, for experimental work in ophthalmology, an endowment of $10,000.

King Edward's Fund has approved the plans for a ten thousand pounds extension to Moorfields Eye Hospital. Only twenty-five per cent of this amount has been raised.

The International Sunshine Department for Blind Babies, 96 Fifth Avenue, New York City, will receive blind babies and backward blind children from other states that will pay $1.50 per day for the care and maintenance of such children. Mrs. John Alden is President General of the institution.

In addition to the examination held at Dallas on April nineteenth and at San Francisco on April twenty-seventh, another examination was held at the Oto-laryngological Clinic, Royal Victoria Hospital, Montreal, on Tuesday, June first, by the American Board of Otolaryngology, Dr. H. W. Loeb, 1402 South Grand Boulevard, St. Louis, Missouri, Secretary.

Current Literature

These are the titles of papers bearing on ophthalmology. They are given in English, some modified to indicate more clearly their subjects. They are grouped under appropriate heads, and in each group arranged alphabetically, usually by the author's name in *heavy-faced type*. The abbreviations means: (Ill.) illustrated; (Pl.) plates; (Col. Pl.) colored plates. Abst. shows it is an abstract of the original article. (Bibl.) means bibliography and (Dis.) discussion published with a paper.

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